Telephony The Journal of the Telephone Industry

Volume 115 August 13, 1938 Number 7

SERVING RURAL SUBSCRIBERS

In Fringe and Suburban Areas

By A. G. DAVIDSON

Commercial and Sales Supervisor, Southwest Telephone Co., Brownwood, Texas

CHANGED RURAL CONDITIONS must be taken into consideration in dealing with the rural telephone problem of today. Some of the complexities of the problem confronting the telephone men. With a changed public attitude and competitive methods of communication, telephone men should accept the challenge to provide an improved type of service in rural areas. Address before annual Texas and Oklahoma conventions

BEFORE DISCUSSING present-day problems incident to providing telephone service in sparsely-settled rural areas adjacent to our exchanges, we must of necessity look backward and recognize some of the developments of the past.

Man has ever sought better and faster means of contact with his fellow man. Signal fires, drums, runners, the mounted rider, ships, the semaphore and the Morse telegraph all form a background for present day telephone communication and represent devices used by ingenious man in his never-ending quest for faster means of communicating his desires over long distances.

Prior to the year 1900 the rural areas adjacent to our present telephone exchanges had practically no means of fast communication and were looked upon as a sort of "No Man's Land." Their only means of communication was the mounted rider or the horse and buggy and these were slow and tedious.

The building of the railroads and the opening of the Great West brought a demand for quicker communication with the rural areas. After the litigation regarding patent rights within the industry, various organizations, previously concerned with providing exchange telephone service for cities and long distance communication between cities, looked to this rural territory as a field for future operations.

In the 15-year period following 1900, practically all telephone companies and individuals were working to create an interest on the part of the rural population in developing some sort of telephone service in these sparsely-settled sections of the country.

These activities resulted in the building of thousands of miles of rural telephone facilities, some owned by the companies but the majority by individuals or small groups sometimes referred to as "mutual" companies.

Development of Telephone in Rural Districts

These rural telephone facilities provided a rapid and satisfactory means of communication between the rural territory and the towns and cities, a service vastly quicker than that provided by the horse and buggy or the mounted rider—there was no public highway system then as we know it today. The result was that within this 15-year period rural telephone service reached its peak in development, generally speaking.

There is no necessity for emphasizing the benefits that accrued to these areas as a result of their pro-

vision with this new and rapid means of communication, and these facilities proved adequate and satisfactory until other means of communication, developed later, proved to be of practical and economic value.

It is doubtful as to whether or not many of the rural telephone facilities built in the early part of the century were economically sound; that is, from the standpoint of being profitable to their owners. Communication was the first concern, and we doubt whether or not proper rates and regulations were used in developing this business at that time.

There is some question, I believe, as to whether or not rural telephone service did reach its peak in this 15-year period, insofar as its communication value is concerned, because of events which developed later.

It is recognized that subsequent events have detracted somewhat from the extreme urgency for telephone service in these rural areas. The development of the automobile, the building of hard-surface highways, the coming of the radio, the extension and improvement in railroad service are undoubtedly contributing factors to the decrease in telephone usage in rural areas of the country.

These are the general facts of the past that have affected our telephone service in the rural areas. The immediate pre-war period, the actual period of the war and the era of prosperity throughout the country in the years prior to 1929, resulting in increased standards of living, undoubtedly contributed in certain sections to some increase in telephone usage in the rural territories.

Effect of Hard-Surface Roads and Automobiles

However, because of the many competitive methods of communication that have been developed—principally, in my opinion, the hard-surface highway and the wide use of the automobile as a means of transportation—there was no extensive increase in the use of the telephone.

The past seven years, or what might be called the depression period, stripped the country of its buying power and dealt to rural telephone service a staggering blow—one from which we shall not recover, unless some means is found by the industry of taking into these areas a telephone service of a substantially higher quality than has been afforded at any time in the past.

I look upon this situation as a challenge to the industry. The policies of the industry as a whole may have been incorrectly designed in previous years whereby we forced a certain class of the population, inexperienced in the building and maintenance of telephone facilities, to own the instrumentalities over which they were to receive telephone communication.

The Changed Rural Situation of Today

The problem of providing telephone service in rural territories today is not as under conditions that existed 35 years ago, because of changes in the attitude of the public, because of economic distress, and because of other competitive methods of communication. I sometimes think the latter have a greater appeal to the public than does communication by telephone, particularly as it affects the so-called farm areas.

If we are to enlarge and extend telephone service into the fringe and suburban areas adjacent to our exchanges, we should accept the challenge that we have an obligation to provide an improved type of service, both with respect to the quality and quantity of such service; and this problem is a complicated one.

As a group we, apparently, have developed no new ideas today with respect to rural telephone service and we continue to think of this service in the same terms as we have for the past 25 years. I wonder if we have a right to consider the types of service heretofore furnished as having been successful.

I often wonder whether the industry as a whole has not suffered because of what I call a non-progressive attitude to the advantage of our more aggressive and progressive competitors.

We now have a higher standard of living in the rural territories than at any time in the past. We have a substantially greater farm income as compared with that of 30 years ago, and a higher average type of farm personnel. Yet despite these improved conditions, the industry has less rural telephone service than it had 20 years ago. I think that upon our shoulders rests a large part of the responsibility for this enigma.

Wide Use of Modern Conveniences in Rural Areas

The rural population today is using many modern conveniences—the washing machine, the radio, the automobile, the farm tractor and some of the latest electrical gadgets. On the other hand, we who provide telephone service seem to expect the user generally to accept communication service of the same type that was provided 20 years ago.

A further improvement in the farm personnel and, very likely, an improvement in the farm income, may be expected from the policies of our national administration. As a result the fringe and suburban areas adjacent to our exchanges undoubtedly will demand, in the near future, a higher quality and quantity of telephone service. I am of the opinion that this class of telephone user is not going to be satisfied with some of the types of service that we have furnished in the past.

Farm rural electrification—even though economically unsound, in my opinion—is a progressive step and will undoubtedly contribute to a further increase in the standard of living in the rural areas. It will emphasize the necessity for improving telephone plant facilities and this should bring about an improvement in the quality of rural service.

The fringe and suburban areas can be developed under one of the three following plans:

1. Multi-party rural telephone service, where the company owns all of the instrumentalities and provides metallic wire circuits where the number of subscribers per line will not exceed six.

2. Service of an exchange type, namely, one-party line or two-party line where the exchange rates are applicable plus the excess mileage charges.

3. Switching service, or service line service, where the subscriber owns all of the instrumentalities and connects with the company's junction pole at the city limits.

The plans suggested do not embody any particularly new ideas. They are merely the application of policies and regulations now existent in limited sections of the country.

I think we all have a sincere desire to improve the quality and quantity of telephone service furnished in the rural areas, but this is not always possible because of the presence of these factors:

1. A low density of population per mile.

2. Low average number of telephone subscribers per mile.

3. High first capital cost on a user basis.

4. The objection on the part of the prospective user to pay a rate commensurate with the proposed service.

5. The inability of the industry to sell the proposed user on the value of the service to be provided.

Close-In Areas Ripe for Development

As a general rule, however, the close-in areas offer the most produc-

tive field for the development of rural telephone service of a higher type. This is due to the fact that we find in these areas a somewhat higher population density per mile and a population having, as a rule, as much or more than the average annual rural income.

These areas, therefore, offer the best opportunity for us to provide this higher class of telephone service that, in our opinion, will be necessary in the future if we are to recover the business that has been lost in these districts.

Our problem, in my opinion, is one of salesmanship. Frankly, I do not think that we of the telephone industry have in the past done a good sales job in these areas. We have been willing to sit by and see our business go to our communication competitors without having put forth the proper sales effort to retain it.

By sales effort I mean the actual attempt to sell the values of telephone service to this class of user and, likewise, the indifferent attitude that we have taken in the past with respect to providing a higher class of service. In my opinion the latter would be invaluable as a sales adjunct in holding and recovering service in these areas.

This is not a job that can be accomplished by any one organization alone. This question of selling to the public the value of telephone service in the sparsely-settled sections of the country is one that should be undertaken by the industry as a whole, and supplemented by the efforts of every company in this business and every individual connected with every company.

Until we realize the problems that confront us in developing service in the farm areas and are willing to recognize changed conditions that have caused the loss of a substantial part of this type of our business, I think we shall not be successful in recovering any substantial part of the business. In the final analysis we must have a large part of this population that is interested in and recognizes the need and value of telephone service.

We have never agreed that switching station service, as we refer to it, has been an entirely satisfactory method of providing communication to these rural areas. We admit that because of the presence of certain of the factors heretofore mentioned certain sections of the territory perhaps cannot be served on any other basis.

This being true, I think we in the telephone business have a definite responsibility in showing considerably more interest than we have manifested in past, in trying to get people who must receive service under this plan, positively interested in the problems of telephone service.

They should be encouraged to organize properly, so that sufficient funds will be available to provide reasonably good circuits. Educational work should be continued, from time to time, with respect to proper maintenance, in order that those people who are served under switching station plan may receive in the future a definitely higher class of service than they have received in the past.

The development of telephone service in these areas should not be handled in a haphazard manner. Each company should set up specific rules and regulations governing the establishment of such service.

These rules and regulations should be reasonable and, above all, should be expressly understood by the subscribers to whom they apply. We have reference here to the matter of monthly rates, the regulations concerning minimum subscribers per line, the various service practices, etc.

OPPORTUNITY

There are three kinds of opportunity. First, the opportunity that makes you. Everyone has that. In youth it is the opportunity to learn. The days and all their duties are full of the sort of opportunity that makes.

Second, there is the opportunity that takes you. Few persons choose their jobs; the job reaches out and chooses them. But it chooses them at the level of their preparation. Most of you, young people, are going to engage in work that has not appeared yet. But get ready. Look ahead 20 years.

Try to see what ought to come in the world of housing, transportation, heating, banking, literature, farming, education, merchandising, journalism, drama, anything—and prepare for anything! Then you will be ready when opportunity takes you.

If you do this you need have no fear of the third kind of opportunity — the opportunity that breaks you. The worst thing that can happen to some men is to get a promotion they are not ready for. If you are not ready, beware of opportunity.—W. J. Cameron on the Ford Sunday Evening Hour.

In the past many difficulties have occurred due to misunderstanding of the company's policies and the resulting dissatisfaction has caused a substantial loss in this class of business.

The Rural Telephone Situation in Texas

Take, for example, Texas. During the past quarter of a century we have witnessed an amazing development of her vast resources and opportunities. The population has almost doubled. The value of agricultural products has increased substantially. The mineral and oil products have increased in annual value from 25 millions of dollars in 1912 to almost 600 millions of dollars in 1937.

The spendable income of the state has increased to more than two and three-quarter billions of dollars. And yet, while all this has been going on, we have been losing telephones in these areas as well as in many of the so-called smaller cities and towns.

This situation, I think, can be attributed in part, as I have said before, to the industry's indifference toward making a reasonable attempt to improve the quality of telephone service in these areas.

Although other means of communication and transportation have progressed to the point where they have become serious competitors to our telephone service, our attitude today is substantially that of 1910, insofar as these fringe and suburban areas are concerned. Of course, there are some isolated exceptions—particularly in the areas adjacent to the larger cities in states where the companies have been compelled, by reason of public demand, to provide adequate facilities to insure a high quality of service.

On your return home keep these problems in mind. Select certain territories adjacent to your exchanges for experimental purposes—a territory where conditions are favorable to obtaining increased usage through an improved service. Let's see whether it is not a fact that if we in the industry as a whole will do these things that have been done by all other carriers—and will show somewhat the same aggressive and progressive attitude—we shall have more immediate service in these territories, with a very likely prospect for future increased usage.

Do not lose track of the fact that all lines of business are in competition for the public's dollar. The public is going to spend its dollars with those business institutions that give them the most value for the dollar spent.

Radio Interference from Telephone Equipment

By DR. ARTHUR BESSEY SMITH

Chief Research Engineer, Associated Electric Laboratories, Inc., Chicago

PART II of a paper on the causes of interference in telephone plant with radio reception and how interference is produced. Equipment for preventing or eliminating disturbance with radio receiving sets is in service and giving commercial satisfaction. Part I of this paper, presented before the Western Society of Engineers, appeared in TELEPHONY of last week

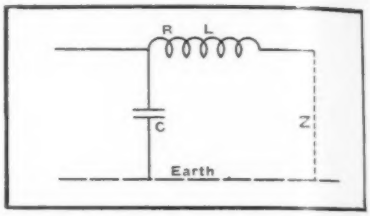


Fig. 16. Radio engineers have made large use of the "brute force" filter.

THERE has been some use made of the parallel tuned circuit, Fig. 15, with coil and condenser in parallel to each other. This circuit has the interesting property of presenting to the main circuit a very high impedance at one certain frequency. As the resistance of coil and condenser becomes smaller, the resonant impedance rises, until if the coil and condenser could have zero resistance, the main line impedance would be infinite.

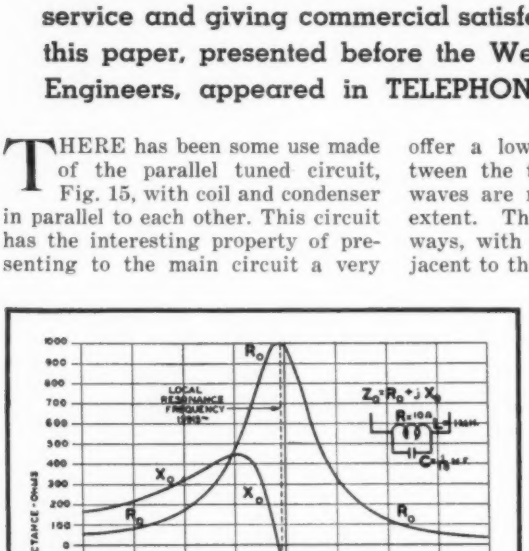


Fig. 15. Parallel tuned circuit is not effective as a radio suppressor.

Now such a device placed in a telephone line can effectively stop radio-frequency waves at or near resonance. But relay contacts create all manner of frequencies, so that the parallel tuned circuit is not effective as a radio suppressor.

Radio engineers have made large use of the "brute force filter," Fig. 16. The theory is that over a wide band of radio frequencies the inductive coil, L, will offer high impedance and the bridged condenser, C, will offer a low impedance shunt. Between the two the radio frequency waves are not passed to any great extent. This device is used in two ways, with the source of waves adjacent to the condenser and with the source adjacent to the coil. In our work, we have found the latter more effective in suppressing interference.

To understand how the telephone engineer has been obliged to move in suppressing radio interference, consider a few of the elementary circuits of automatic telephony, and the structure of a telephone plant. Fig. 17 shows the barely necessary circuits between a telephone and an automatic switch in the central office. The telephone instrument is at the left, with T the transmitter, R the receiver, CD the calling device, usually of the dial type, together with the induction coil, the bell (1400 ohms) and the condenser, one mf.

At the right is shown the line relay which has two windings of 200 ohms each, supplied with current from a 48-volt battery whose positive terminal is grounded. In the condition shown it is ready to receive impulses from the dial. The line relay is energized, which holds the release relay (at its right) energized. The latter has prepared the impulse circuit for the series relay (SeRly) and the vertical magnet (VM).

When the dial is operated, the springs, CD, are momentarily opened a number of times in regular rapid succession. The line relay follows these interruptions, feeding pulsations of current to the vertical mag-

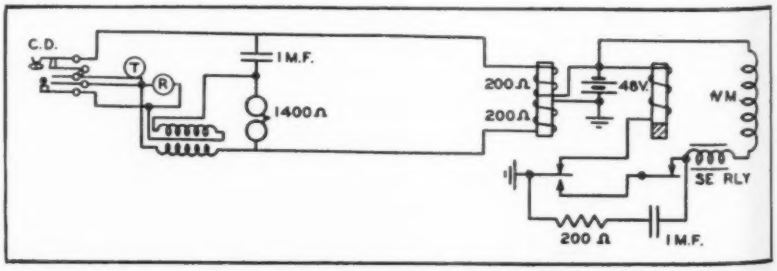


Fig. 17. Dialing an automatic switch.

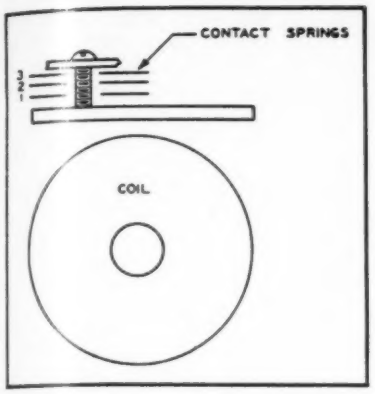


Fig. 18. Capacitance of line relay springs.

net, the latter operating the switching mechanism. At the end of the group of impulses, the dial comes to rest, closed, and the line relay energized.

If a radio set is near enough to the telephone line, there will be heard in the loudspeaker every impulse of the group. If one is good at counting rapidly, he can tell what number is dialed.

The interference comes from two contacts, the impulse springs CD and the impulse springs of the line relay. It is easy to see how the dial springs cause trouble, for they are directly connected to the line. But the case of the relay is different. The springs are not in the line circuit—they are wholly local.

Viewed from the radio standpoint, the relay springs are rather closely connected to the line wires. Fig. 18 shows the cross section of the relay through the spring insulators. The springs are made of broad flat metal, supported by phenol-fiber insulators. These constitute small condensers, too small to consider telephonically, but very real at radio frequencies.

In particular, springs 1 and 3 are thus coupled to the flat "heel piece" of the magnet, and thence to the core of the coil. The path to the line is made clearer by reference to Fig. 19. "A" and "B" are the two coil windings. The long rectangle below them is the iron core and heelpiece.

The capacitances between windings and core are represented by +H and —H. The capacitances between springs and core are represented by C, for springs 1 and 3. It will be seen that radio-frequency disturbances which start at the contacts find relatively easy paths by way of C and +H and —H to the two line wires +L and — L.

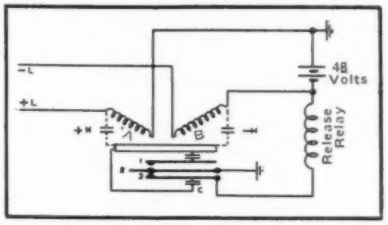


Fig. 19. Coil and spring capacitance of line relay.

If the telephone line is short, as in the case of most private automatic exchanges and many small rural exchanges, the disturbance from the dial and that from the switch in the central office cannot be separated. If one is suppressed and not the other, the interference seems to be just about as bad as before.

It has been found possible to attain commercial suppression of the interference which is due to the calling device by means of two coils and a condenser as in Fig. 20. Coil 1-2 concentric with 3-4 and they are connected in series aiding. They have only a fraction of a millihenry inductance. The condenser is 0.1 mf and is of the usual rolled telephone type. The normal circuit comes from —L through winding 1-2, contact springs 2-1, winding 3-4, past shunt spring 1 into the rest of the apparatus in the telephone and out through the induction coil to +L. This radio suppressor applied to the dial has no measurable effect on speech or on dialing.

The interference generated by the line relay of the switch in the central office can be suppressed in a similar manner. But the cabling practices of telephone engineers so bind all kinds of circuits together with capacitance of radio frequency magnitude that suppressors applied there can seldom have their full effect.

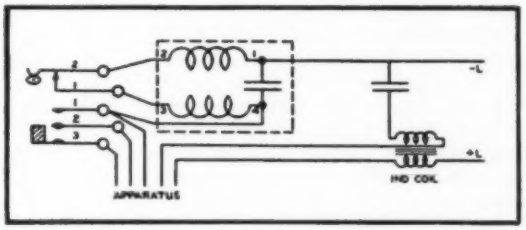


Fig. 20. Radio suppressor for dial calling device.

Viewed from the standpoint of the radio engineer, the promiscuous cabling together of telephone wires is atrocious. The capacitance between two telephone wires within a switchboard is too small to be seriously objectionable from a telephone point of view. Crosstalk due to such is easily removed by running all necessary pairs in twisted form which effectively transposes them.

But such twisted pair transpositions do not reduce the radio-frequency couplings—they exist all over

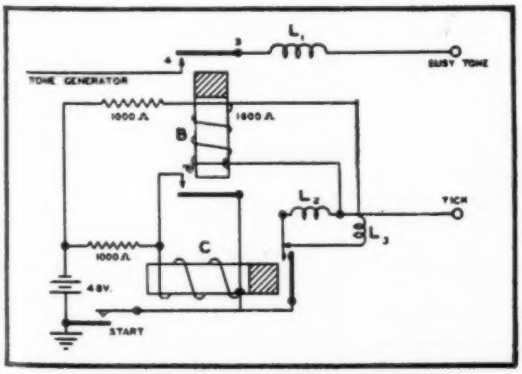


Fig. 21. One of the milder radio offenders is the tone interrupter.

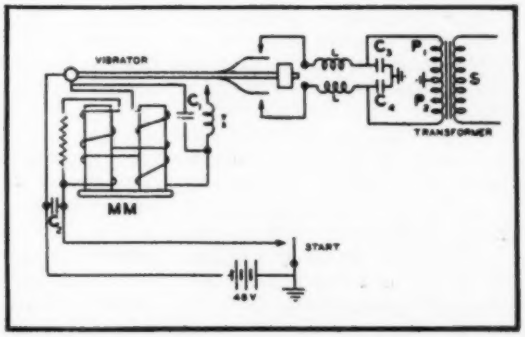


Fig. 22. The vibrating interrupter or ringing converter is another radio disturbance creator.

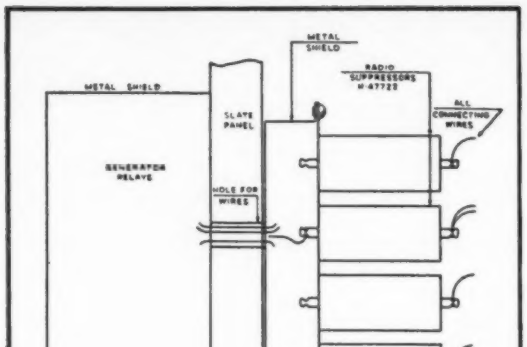


Fig. 23. Relays are difficult to treat separately; they are more easily suppressed as a group.

the switchboard. It would cost too much to recable with radio in view, or to avoid cabling. Fortunately, however, the application of a suppressor to each of the worst offenders does some good, and in some cases reduces the total cost of suppression.

A sample of one of the milder offenders is the tone interrupter (Fig. 21), used in many small exchanges. By a simple interaction, relays B and C cause each other to vibrate periodically. Relay B by its springs 3-4 interrupt the tone current which comes from the left and departs to the right at "Busy Tone."

The insertion of a radio-frequency choke coil, L_1, usually reduces the disturbance below the point of complaint. The make-before-break springs of relay C send disturbance by way of the "tick" wire, which has been successfully suppressed by means of the choke coil, L_2 and L_3.

A much worse offender is the vibrating ringing converter of Fig. 22. Both the motor magnet contact and the two pole-changing contacts of the vibrator cause radio interference. The suppression here found is commercial in principle like that of Fig. 20. In Fig. 22, coil I and condenser C_1 care for the motor contact. The latter is 0.1 mf.

The coil has a little more than one millihenry inductance and is aircored. The pole-changing contacts require a coil and condenser each. L, L are a little more than one millihenry each, but are made of wire heavy enough to carry the current necessary for ringing many bells. The mutual inductance between them is small, and the coupling is series opposing which is parallel aiding, for the radio-frequency current flows in the same direction in the two wires.

Condensers C_3 and C_4 are 0.1 mf each. In addition to the foregoing there is a one mf condenser C_2 across the battery leads, placed close to the motor magnet and vibrator. In all cases, radio suppression devices must be located very close to the contacts on which they act. Long leads reduce the effectiveness very seriously, both by increasing the impedance of the condenser and by increasing the capacitative coupling to other circuits.

In automatic exchanges there are often used groups of relays which act together as a unit. One such is the group known as the "generator relays" because they interrupt the ringing current from the generator on its way to the connector switches. They thus cause the familiar periodic ringing of telephone bells, and also enable one ringing current generator to ring more bells by ringing only one group of bells at a time.

There are other such groups of relays, which are difficult to treat separately. They are more easily suppressed as a group; Fig. 23 shows one such way. The group is surrounded by a metal shield. All the wires pass through the panel directly into another metal shield which carries radio suppressors enough to care for all the wires. "All connecting wires" thus carry from the group of relays no commercial amount of radio-frequency current.

Because of the somewhat complete interior bonding of the parts of a telephone switchboard by the cabling, it becomes an oppressive matter to try to suppress each and every contact. It cannot be done within the limits of commercially bearable cost. But the situation in the city and in the country affords a measure of relief.

In the city, the great amount of cable used saves most of the subscribers and their neighbors from hearing the central office equipment in their radios. And the little complaint coming from the immediate vicinity of the central office can be satisfied by concentrating on the worst causes, like the ringing converter, the interrupters and tones.

In the country where little or no cable exists, it is often not too costly to make sure of an effective shield around the central office equipment and put a radio suppressor on each line.

The treatment of the power line which supplies current for charging the battery is shown in Fig. 24. At the left is shown only enough of a Tungar-type rectifier to identify it. At the right is the alternating current supply. The radio suppressor consists of two coils, L L, with two 0.1 mf condensers to ground. The coils have about 0.5 mh inductance each and offer very little impedance to the 60-cycle power current, for the mutual inductance is very high.

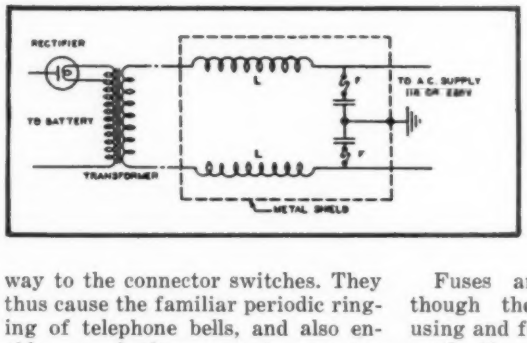


Fig. 24. Suppressor treatment applied to power line.

Fuses are usually omitted, although there are arguments for using and for omitting. If fuses are used, the failure of a condenser will not stop the charging, but the radio disturbance might rise. If fuses are omitted, the failure of a condenser will blow the main fuse and thus call attention to the situation, inducing prompt repair of the defect.

The radio suppressor for the telephone line, Fig. 25, has a similar circuit, but smaller coils and less ex-

Fig. 25. Radio suppressor for telephone lines.

pensive condensers. The inductance of the coils is about 0.5 to 1 mh and each condenser has 0.1 mf. The coils are wound in parallel and connected series opposing to reduce transmission loss.

Two separate condensers are used to keep down the capacitance across the line (only 0.05 mf.). The three-plate condenser is cheaper, but places 0.1 mf across the line and thus increases the transmission loss. For important lines whose balance to earth must be very exact, the two condensers are selected in pairs which have very nearly the same capacitance.

The radio suppressor for the telephone line and (and any other line) should be installed at the electrical boundary—at or in the shield itself. In Fig. 26, line No. 3 shows such correct installation.

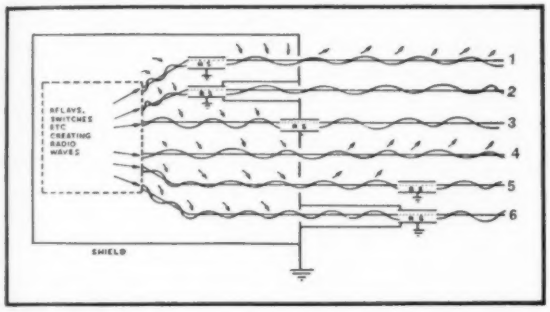


Fig. 26. Correct installation of suppressors in open wire telephone lines.

If the suppressor be located for convenience somewhere within the cabinet, as line No. 1, radio disturbing waves will get into the line between the suppressor and the shield. If the suppressor *must* be so located, the subscriber cable must be shielded from the suppressors to the wall of the cabinet, line 2.

If for convenience the suppressors are located outside the cabinet at some distance away, radiation will occur into surrounding space from the wires between the cabinet and the suppressors, line 5. If they *must* be so located, the subscriber cable must be shielded between cabinet and suppressors, line 6. Any one single pair, like No. 4, which has no suppressor, will undo all the good work of the others.

Telephone apparatus causes radio interference by reason of its many contacts, made and broken. Telephone exchanges which have all-cable wire plants cause fewer complaints than those which have little or no cable. For that reason, and the remoteness from broadcast centers, small towns furnish a greater problem.

Means have been worked out for suppressing radio interference caused by telephone apparatus, and much of it is in service with commercial satisfaction. The cost of such suppression is part of the economic problem of the communication art.

Apparatus and methods for the numerical measurement of the radio disturbing power of telephone apparatus has been worked out to the point of usefulness, but there is need for continual advance. The best is yet to come.

Research and the Future

In this work, each item investigated revealed several points of interest, inviting further research. In our search for causes, we are usually rewarded by facts and relationships which enable us better to understand the operation of the laws of nature. Yet each step deeper into the facts only opens up wider and deeper hints, suggestions of more fruitful fields, rich in laws to be discovered. In fact, all true research is an ever-broadening field leading the humble devout student to more certain conviction of the infinity of the divine Creator.

Acknowledgment: To Lawrence J. Lesh must be expressed my appreciation for his faithful work on radio interference, and to others of the Associated Electric Laboratories, Inc. and associated companies for their sympathetic cooperation.

(Concluded)

▼ ▼

Michigan Bell Boosts State's Summer Resorts

For the eleventh consecutive year, the Michigan Bell Telephone Co. is publishing in 250 newspapers of the state a series of six advertisements calling the attention of the Michigan public to the advantages which that state has to offer the vacationist.

The company holds that as a "Michigan citizen" it has a responsibility to promote the best interests of Michigan and of its people. Other agencies, including the state itself, do a splendid work in inducing people outside of Michigan to vacation in Michigan, bringing to their attention its vast and beautiful Great Lakes shoreline, its 5,000 sparkling inland lakes, its innumerable rivers, waterfalls, hills, valleys, historical spots, great industrial cities, restful villages, fine parks and highways, facilities for every kind of vacation play, progressive businesses and hospitable people.

The Michigan Bell company advertises these same advantages to residents of Michigan in the hope that they will spend their playday in Michigan, learn about their own state, and induce friends and others to come there for their vacation days.

▼ ▼

Praise for Japanese Operators Marks Precedent

Private branch exchange operators employed at the Kyoto Imperial University, Kyoto, Japan, were recently given public recognition for their excellent long-time service, along with some mementos to mark the occasion. Since this was the first public recognition of the service of telephone operators in Japan where the telephone system is operated by the government, it was indeed a noteworthy event in that country's ancient capital, according to K. Shibata, chief superintendent of the Kyoto central office.

The P. B. X. of the Kyoto Imperial University was established in 1907 with a magneto system, but was converted to common battery in 1916. It now has 20 subscriber lines connected to the central telephone office and connecting stations amount to over 500. The personnel consists of 22 persons, of whom 17 are operators and five workmen. The supervisor is Mr. Akai, chief engineer of the section for the telephone exchange.

This is, of course, one of the largest P. B. X.'s in Japan proper, says Mr. Shibata, and belongs in the first class P. B. X. service.

▼ ▼

Patent Granted on Television Telephone

A television telephone designed to make it possible to see a person while talking to him was patented late in July by Alexander McLean Nicolson of New York.

A bell-shaped horn, resembling the early types of phonograph and radio loudspeakers, contains television scanning devices for both sending and receiving, as well as a radio microphone and loudspeaker.

Mr. Nicolson said the system was primarily for inter-office communication in a single building. He suggested its use also for long range radio-television communication.

Raising Service Standards in Small Exchange Districts

By DONALD H. CAMPBELL

District Plant Superintendent, Suburban Area, Rochester (N.Y.) Telephone Corp.

PROGRESS MADE in a ten-year program for improving and protecting service in suburban exchange districts. Daily, weekly, quarterly, semi-annual and annual tests involved in preventive maintenance routines. Address at annual convention of New York State Telephone Association held at Rochester

THE MANAGEMENT of the Rochester Telephone Corp. recognized, about ten years ago, the need for improving and protecting the service in the suburban exchange districts and prepared a program which included the following:

The gradual replacement of magneto lines and central offices with common battery equipment.

The installation of more improved types of subscribers' station equipment.

The rehabilitation of aerial wire circuits and pole lines, and the replacement of heavy open-wire leads with cable.

At the time this program was contemplated, only about 38 per cent of our suburban telephones were common-battery operated. This program was started in 1928. During that year and the following year three suburban exchanges were rebuilt.

As had been the practice, the new central office equipments installed during these years were located in rented quarters. In the year 1930, however, the management recognized the desirability of placing all new central office equipment in company-owned buildings. In considering this policy it was decided to locate them in desirable residential sections wherever possible, taking them away from the traffic noise which prevails on the main thoroughfares. In order to harmonize with their surroundings, residential type buildings were planned.

Since that program was inaugurated, 14 buildings have been erected. Of these buildings, two are of a commercial design, as required by local restrictions; four were designed to house automatic type equipment and are unattended; the others were of a residential type in a residential neighborhood.

Considerable thought was given to the location of these buildings—to avoid objectionable neighbors, fire hazards, parking problems, distance from business section, noise, etc. While the carrying charges on these company-owned buildings are higher than the rental for the equivalent amount of floor space, our company feels they have been more than justified by the safety and service features that have been obtained by their erection.

Most of the central office equipment installed in these buildings consists of the latest type common battery switchboards and circuits designed and built by the Stromberg-Carlson Telephone Mfg. Co. in collaboration with our engineers. As most of these equipments provide such features as machine ringing with reverted ringing tone, flashing recall signals, dim ringing indication and full selective harmonic ringing on all party and rural lines, they should provide service as good as it is possible to give.

In two exchange districts, which serve a total of 94 lines with 222 stations, full dial equipment was installed with automatic trunks to a manual office for toll service and assistance. Two more exchange districts, serving a total of 261 lines and 538 stations, were converted (late in June, 1938) to full dial operation with automatic trunks to a manual office. Thus 76 per cent of the suburban area of the Rochester Telephone Corp., serving 7,929 lines and 20,593 stations, is now common-battery operated.

Obviously, the improved types of equipments and circuits installed demand a higher standard of maintenance than was necessary when the lines were operated on a magneto basis. To attain this, routines have been followed in which a concentrated effort has been made toward preventive maintenance. To succeed in any such effort, a definite program must be prepared and followed as far as is possible. Our program provides for a complete inspection of all physical plant annually.

In the maintenance of our central office equipment, numerous tests are made by the traffic department forces. Answering jack tests are made weekly. Cord tests are also made weekly, cords being tested for supervision, noise, cut-outs, ringing, tripping, etc. Talking and ringing tests on all toll lines are made daily. In addition to these tests, insulation tests are made every three months on all lines by the plant department forces and 200-volt breakdown tests are made yearly on all lines.

Tests Involved in Central Office Maintenance

Storage batteries in all offices are operated by an automatic method. The practice most generally followed is the nine-hour, seven-day float method which is approved by most battery manufacturers. With this method the specific gravity and temperature of the electrolyte, the voltage, charge and discharge rates are taken at 8 o'clock each morning and at 5 o'clock each afternoon the office is attended by a plant man.

All emergency ringing and interrupter machines are operated at least one day each week for testing purposes. No relay adjustments are changed, except by tests made with the Skinner current-flow testing set, as our experience has proven that most central office troubles can be cleared without changing relay adjustments.

All plugs on the switchboard are polished weekly. The emergency telephone circuit, which is provided in every central office, is tested weekly. The maintenance of the buildings is handled principally by part-time female building cleaners. The amount of time worked is governed by the amount of floor space involved.

As all of our company-owned buildings are provided with some type of automatic heating plant, this precludes the necessity for the care of fires. In most cases these heaters are of the automatic stoker type. Being

thermostatically controlled, when the hopper is filled daily and the ashes removed by the maintenance man, they do not require any other attention.

The Maintenance of Open-Wire Lines

The maintenance of open-wire lines is divided into two parts, toll and exchange. The maintenance of the toll lines is handled by toll patrolmen. Each toll patrolman is assigned approximately 150 miles of pole line to maintain. This maintenance is divided into light patrol trips, heavy patrol trips and tree trimming.

The light patrol trips are made at least twice each year—in the spring and fall—and consist of a fairly rapid visual inspection of the line for the purpose of correcting irregularities requiring immediate attention, such as wire or debris on the lines, defective insulators, pins or tie wires, broken or loose pole brackets, poles broken or leaning, inspection of toll cable terminals, including protectors and jumpers.

Heavy patrol trips are made during the months of May to October, inclusive, and consists of straightening crossarms, replacing defective crossarms, tightening all lose insulators, repairing loose pins, repairing stretched or defective tie wires, pulling slack wire where necessary, checking transpositions, straightening poles where required, in addition to all items covered on light patrol trips.

All toll poles are butt-inspected every three years. A record is made of their condition and an estimate made of their probable life. During the heavy patrol trip, a survey is made of tree-trimming requirements, and at the end of the patrol period an estimate is made of the man-hours required to complete the tree trimming during the winter months when the foliage is off the trees. This trimming is usually started about November 1 and completed by May 1.

Maintenance of exchange lines is handled by the wire chief's forces and is very much the same as the toll patrol, with the exception that a larger portion of the inspection is made from the ground. As the amount of time the wire chief's forces spend on line inspection work is governed by their other duties, a definite schedule cannot be prepared for this work. However, a concentrated effort is made to cover all exchange lines at least once during the course of each year.

Each subscriber's station that is visited because of trouble is thoroughly inspected, unless such an inspection has been made or the station has been installed within a year. This includes an inspection of the general condition of the subscriber's station equipment, including a talking and ringing test. A record is made of the condition of the transmitter, receiver, cords, switch-hook, mouthpiece, batteries, hand generator, bell box, inside wire, ground wire, ground connection, protector blocks, fuses and drop wire.

If only a small amount of work is involved to correct the defects found on this inspection, it is done at once. If the station requires rewiring, replacing of drop wire, replacing of subscriber's station equipment or other work which would take considerable time to complete, it is noted on a record and completed at a later date.

When it is necessary to change subscriber's station equipment, in most cases anti-side tone equipment of the three-winding, induction coil type is installed. When stations are rewired or drop wires replaced, the work is done to conform with standard specifications. No stations are rewired or drop wires replaced simply to bring the installations up to present day specifications. Unless the conditions observed indicate potential trouble, no change is made.

In addition to the inspection made when stations are visited because of trouble, all stations which have not been visited within one year are inspected in the same manner. Private branch exchange switchboards are inspected on regular schedules. All cord boards, consisting of not more than one position, are inspected twice each year. All cordless boards and intercommunicating systems are inspected once each year.

On these inspections the general condition is noted, the operator is consulted regarding any defects noted by her, all plugs and jacks are gauged, tested and inspected. Readings are taken of the battery feeder; all cords and key circuits are tested. All switchboard wiring and cable boxes are inspected. In addition, all stations are visited and inspected according to the method outlined for subscribers' station equipment. All floater batteries are inspected and tested monthly.

Maintenance of Cable Plant in Suburban Area

The cable plant in our suburban area consists of 203.5 miles of aerial cable sheath and 19.35 miles of underground cable sheath. For the maintenance of this cable two two-man crews are used, the area being divided into two districts. These crews clear all cable troubles where spares cannot be obtained by the repairman, repair all sheath openings which they make, repair all defective terminals and, in addition, inspect all cable and terminals at least once each year.

This inspection work consists of a visual inspection of all cable sheath, repairing all defects found, inspecting and cleaning terminals, replacing broken or missing pole steps, replacing ties, placing grade clamps where required, replacing defective rings and clamps, repainting wooden terminals and trimming all trees which are liable to cause abrasions in the sheath. In addition to these items, all underground cable sleeves are pressure tested yearly.

Personnel Required for Maintaining Suburban Plant

To maintain our suburban plant in this manner requires a force of 20 suburban wire chiefs, 15 installer-repairmen, three toll patrolmen, four cable maintenance men and 17 part-time building cleaners. Obviously, with the amount of work involved, the size of the area and the types of equipment considerable supervision is required.

The supervisory personnel consists of a district plant superintendent, two wire chiefs' supervisors and one inspector. The method of supervision used by the wire chiefs' supervisors is of the inspection type, in addition to their regular supervisory visits.

They plan to make a complete inspection of each central office district at least once each year. In the central office a complete inspection is made of all equipment, all records are checked, a portion of each type of equipment is tested, specification hand books are checked for correctness, and storerooms and their contents are inspected. On the outside plant, a riding inspection is made of all lines.

A certain number of jobs of all types are visited and a quality rating inspection made. All recently-issued hand-book specifications are discussed and definitely understood before the inspection is completed.

The inspector is located in the southern part of the territory, in close proximity to the new dial offices which have been or will be cut into service. His duties consist principally of assisting wire chiefs and their forces on troubles or installations of an unusual or highly technical nature.

In connection with the training of

men for the maintenance of the higher types of central office equipments—such as the dial offices and the feature manual offices which have been installed—one of the duties of the inspector has been to conduct classes in the instruction of the circuits and methods of operation. These classes consist of a four-hour session once each week.

In anticipation of the installation of dial offices, a class of eight men, consisting of wire chiefs and installer-repairmen, was started in the fall of 1936. At that time the engineering of these dial offices had not progressed to the point where the circuits and equipment which would be used could be determined. Consequently, the classes during the winter of 1936-1937 were conducted along the lines of automatic theories and general circuits. The classes were not conducted during the summer months but in the fall of 1937 were resumed, at which time it was possible to teach the actual circuits and equipments which were to be installed.

This class of men was graduated on May 26 of this year, after a thorough examination by one of our most capable circuit engineers. Both written and oral types of examinations were given and the class was graduated with an average standing of 91 per cent. The highest standing in the class was 99 per cent and the lowest standing, 81 per cent. This would seem to indicate that no company should be reluctant to install more modern types of apparatus where they can thereby improve the service, because they feel that they must employ highly trained technicians for its maintenance.

We feel that we have developed a class of capable automatic maintenance men who will be able to maintain these offices with the highest degree of efficiency and none of the men selected for this class had ever seen any automatic equipment before these sessions were started.

The Operators' Corner

By MRS. MAYME WORKMAN

Traffic Supervisor, The Illinois Telephone Association, Springfield, Ill.

HANDLING calls for "the operator" at a distant point. Series No. 339

OUR FIRST question this week deals with a condition where the calling party requests his operator to reach "the operator" at a distant point. The question is: "When a party or subscriber wishes to talk to an operator at a certain place, hasn't that party or subscriber a right to talk to that operator?" The answer to the question is, "yes," provided he is willing to pay for the call.

It frequently happens that a telephone subscriber, particularly from a small community, away from home on business or for a visit, wishes to call home to talk to his wife, a member of his family, or perhaps his business partner. He knows the young women who operate the switchboard in his community, so he places a call for "the operator" at his home town, feeling certain that if he can talk to "Nellie," she will be able to locate the party he desires.

The calling party is not aware that his home-town operator is not privileged to locate a certain party for him after he reaches her on a station-to-station call, and that she will have to refer him back to the operator at the originating point, requesting him to place his call with her.

Another condition where a customer may place a call for the operator at a distant place is the case where the customer was out when a long distance call came in for him and word was left for him to call the distant place operator upon his return.

Telephone companies, always ready to be of service to their customers, have adopted routines for handling calls of this nature in order that telephone customers may not be subjected to unnecessary expense or inconvenience.

If an operator receives a call for "the operator" at a distant place (other than a WH party report) and the call is not from an official line, the operator will acknowledge the call and connect the calling party with her supervisor. The supervisor will try to handle the calling party's report or request. If it develops that it is a matter which the supervisor is not in a position to assist in handling, she should tell the calling party to report the case to (the party or department), if she knows who should handle the case, and then offer to establish connection or tell him that she will be glad to report the case, whichever seems desirable.

In any case, if the calling party insists upon being connected with the distant operator, the supervisor should tell the calling party that there will be a charge for the connection unless the distant place is within the free service area. If he offers no objection to the charge, she should tell the operator to proceed with the call. If he objects to the charge, the supervisor should connect him with the employe locally designated to handle such cases.

If the supervisor tells the operator to establish a connection on a call for "the operator" at a distant point, the operator will complete the ticket details and proceed with the call in the usual way. She will enter "operator" in the "Address" space on the ticket, as this call is classified as a station-to-station call.

The purpose of intercepting calls placed for "the operator" at a distant point, as you no doubt have surmised, is: (1) To eliminate having a subscriber pay for information which can be secured without cost from his operator or supervisor; (2) to relieve the customer of paying for two long distance calls when one would suffice, and (3) to speed up the service on his call by eliminating any unnecessary delay.

Questions from Illinois Operators

1. When a party or subscriber wishes to talk to the operator at a certain place, hasn't that party or subscriber a right to talk to that operator?
2. If more than one long distance call comes to a tributary operator before it can be passed, should both calls be passed on same circuit or different circuits?
3. Is it necessary to pass a verbal clearance order on all built-up connections?
4. If a subscriber calls long distance and says, "Is long distance calling me?" what action should be taken?
5. In our office, calls for an O. K., if charged to a third member, are referred to the supervisor. Do you think it would speed up the work to have the operator do this?

The answers to these traffic questions are given on page 29.

CORDS AND CORDAGE

REDUCED PRICES

Reduced prices on cords and cordage are effective August 15, 1938. Write for new price sheet.

QUANTITY DISCOUNTS

Discounts will be allowed for quantity purchases as indicated below:

On single quantity orders or on orders for a definite number of cords to be delivered over a period not to exceed one year—

CORDS

1 to 149	net
150 to 249	5%
250 to 499	10%
500 to 999	15%
1000 to 2999	20%
3000 and over	25%

CORDAGE

1 to 99 feet	net
100 to 499 feet	10%
500 feet and over	15%

AMERICAN AUTOMATIC ELECTRIC SALES COMPANY

1033 West Van Buren Street, Chicago, Illinois

Distributor for products of AUTOMATIC ELECTRIC COMPANY and other companies

Here is
Rotore

ILLINOIS CENTRAL TE

CLINTON

July

Mr. C. S. Cadwell, Sales
American Automatic Electri
1033 West Van Buren Street
Chicago, Illinois

Dear Mr. Cadwell:

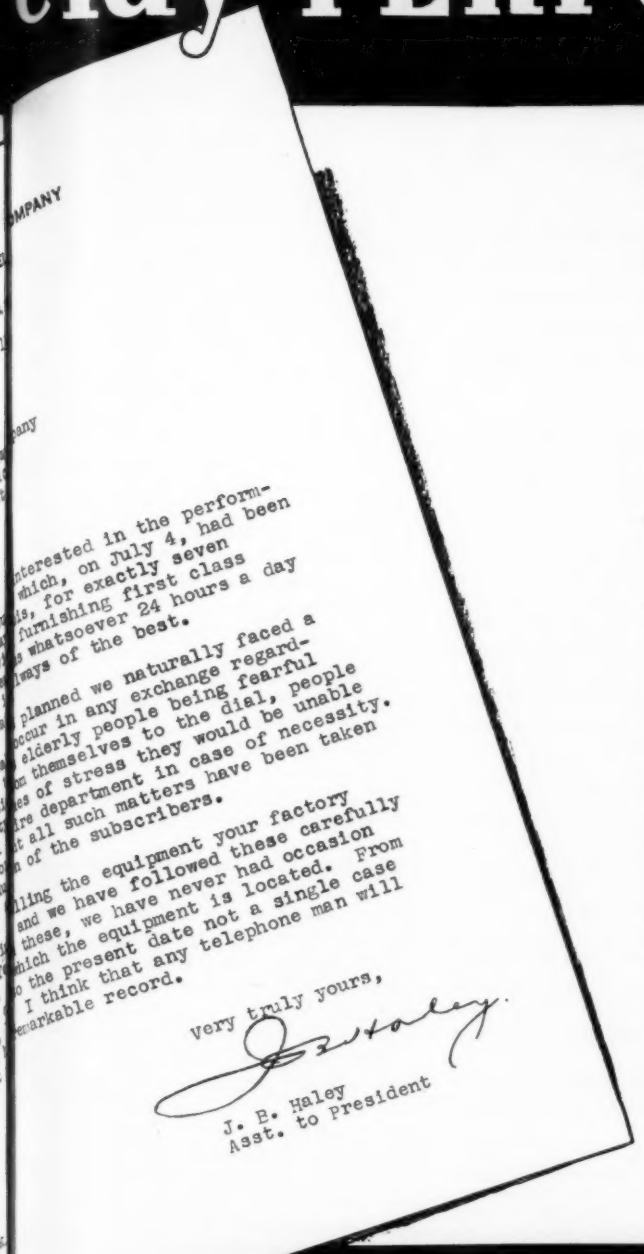
I thought that you
ance of the rotor rela
in service at Waynesv
months. This equipm
service without any
under conditions tha

When the inst
number of hazards
less of its locati
of their inabilit
who were fearful
to reach a docto
Without any und
care of to the

At the ti
suggested a
once a week,
to open the
December 4,
of trouble
agree that

JBH/bk

...e is typical ...relay PERFORMANCE!



...MPANY

...nterested in the perform-
...which, on July 4, had been
...s, for exactly seven
...furnishing first class
...s whatsoever 24 hours a day
...ays of the best.

...planned we naturally faced a
...ccur in any exchange regard-
...elderly people being fearful
...m themselves to the dial, people
...es of stress they would be unable
...re department in case of necessity.
...t all such matters have been taken
...n of the subscribers.

...lling the equipment your factory
...and we have followed these carefully
...these, we have never had occasion
...hich the equipment is located. From
...o the present date not a single case
... I think that any telephone man will
...enarkable record.

Very truly yours,

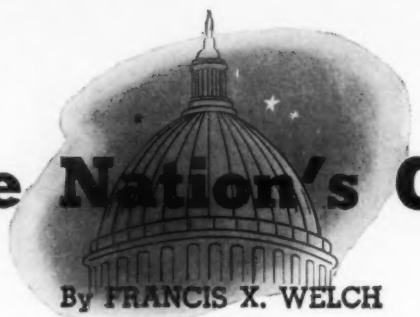
J. B. Haley
Asst. to President

THE accompanying letter is but one of many we have received, reflecting the experience of telephone companies with the new Automatic Electric Rotor Relay switchboard. The fact that these reactions are all highly favorable serves as practical substantiation of the basic advantages of the Rotor Relay, which by its simplicity of principle and dependability of performance brings new economy and efficiency to relay type operation. If you will send us a complete description of your exchange, we shall be glad to furnish you technical data and price information relating specifically to your situation. Let us hear from you *—today!*

AUTOMATIC ELECTRIC

MAKERS OF TELEPHONE, COMMUNICATION AND SIGNALING APPARATUS
ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

Distributors in U. S. and Possessions:
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY, 1033 West Van Buren Street, Chicago, U. S. A.
Export Distributors: AUTOMATIC ELECTRIC SALES COMPANY, LIMITED



In the Nation's Capital

By FRANCIS X. WELCH

Special Washington, D. C., Correspondent for TELEPHONY

SOME REMARKS of John M. Carmody, chief of the REA, in Arkansas indicate that a period of intensive REA promotion is ahead for the next year or more. Comments on the New Deal "purge" and the presidential candidates in 1940 in answer to inquiries

WASHINGTON is pretty empty of first-string officials these days. The President has been gone for weeks. The Cabinet members are widely dispersed (two of them, Farley and Ickes, are in Alaska at this writing). Even those who remain within commuting distance of America's semi-tropical capital never keep strictly regular office hours, with the exception of our over-worked Secretary of State Cordell Hull.

No, there's not much news being made in Washington right now aside from the activities of Senator Sheppard's committee to investigate campaign irregularities and an occasional eruption of that habitually volcanic body—the National Labor Relations Board. In the news that is being made elsewhere, however, Washington officialdom very often has a hand.

Furthermore, in the excitement over the current crop of hot primary contests, the comings and goings and sayings of Washington officialdom are likely to be overlooked. But it does not make these things any the less important because they pass unnoticed.

A CASE in point is John M. Carmody, head of the REA. During the last week of July Mr. Carmody made an extensive tour of the state of Arkansas and made a number of speeches—at Berryville, Little Rock, and Augusta. (The Arkansas primary, incidentally, was held August 9.) Because of past differences with Mr. Carmody over the matter of compensation for damage done by inductive interference resulting from rural telephone line operation, the Independent telephone industry might conceivably be interested in a few things, Mr. Carmody said.

First of all, it should be explained that Arkansas is somewhat of a pet state for the REA. It has had its own way with the state's regulatory commission there (in the matter of inductive interference claims). The governor and state administration have actively promoted the REA program in Arkansas.

Even the state's private power company, headed by Harvey Couch, who has always gotten along pretty well with the New Deal, has cooperated to the apparently mutual satisfaction of both sides. The situation was really unique in that both the REA head and the private power company executives were throwing compliments at each other. As yet, such a thing has never happened anywhere else, to this writer's knowledge.

Speaking of the Arkansas State Utilities Commission, Mr. Carmody said:

> "We have felt from the beginning that we have been getting the fullest cooperation possible. I don't know what handicaps they had to overcome, but they got them out of the way in a hurry.
>
> Furthermore, they have established several precedents—in connection with telephone interference and other matters, for instance—which have been helpful to us in many other places."

This is quite a different tune, when you stop to examine it, than the REA lawyers have been singing whenever the issue of compensation for telephone companies has been raised. Both before and after the Arkansas commission decision (TELEPHONY of June 4; First Electric Cooperative Ass'n., 20 P. U. R. (N. S.) 471), REA attorneys have taken the position that the law is so well settled on the subject that there is no doubt about it. Rural electric line operators are not liable, under such circumstances, and that's all there was to it.

WHAT NEED then did REA have of additional "precedents" from the Arkansas state commission? Could it be that REA isn't as sure of its position as its lawyers say it is? Truth of the matter is that there is very grave doubt about REA contention regarding non-liability under such circumstances, and the REA lawyers are grateful for every shred of "precedent" they can pick up to support it. Mr. Carmody's statement is evidence of that gratitude.

Mr. Carmody's Arkansas speeches also contained evidence of something else—a desire to get rid of that congressionally appropriated burden of $140,000,000, most of which is still burning the pockets of the REA.

Mr. Carmody reminded his Arkansas audience that under the terms of the congressional appropriation, half of the $140,000,000 has to be set aside for distribution *among all the states* on the basis of population, weighted by the relative degree of progress already made in rural electrification.

"More than $2,000,000 of this must be reserved for Arkansas or not used," he said. "Distribution of the second half will be within the discretion of the administrator to be spent on sound projects."

Mr. Carmody said that if Arkansas would go to work immediately and work out sound and feasible projects, it might receive up to $4,000,000 or $5,000,000 of the $140,-

000,000 allocation. He hopes to allot $20,000,000 for July and $20,000,000 for August. He added:

"We've got a pocketful of money up there to distribute to communities that can prove they have economically sound projects, and we want action in getting those projects under way."

The foregoing passages are related here to impress telephone men not only in rural areas but *all over the United States* that we are in for a period of intensive REA promotion during the next year and probably long after that. But promotion of REA loans must be preceded by farmer interest, and farmer interest has to be aroused by advertisement and agitation.

WHEN A PRIVATE company wants to advertise to promote its activity it has to put out hard cash and a lot of it, as any telephone executive well knows. But REA enjoys the advantage common to all government activity—free advertisement. For example, Mr. Carmody said at Berryville: "We are experimenting now on marking poles, and we might get a WPA project to mark the poles with REA designations."

Remember REA neither owns nor operates these pole lines. The cooperatives own them; REA is only the banker. As for WPA, it has nothing at all to do with them. Yet here is a Federal banking agency arranging to get free service from a Federal relief agency to paint promotional matter on the property of a third party. Wonder what you would say to a private banker if he suggested that he would give you a loan on your privately-owned telephone property upon condition that all your poles were marked "Bank at Such-and-Such Trust Company!"

Of course, no one should blame REA for utilizing all the advantages that it inherits from its origin as a government agency, and free advertisement is one of them. REA has a tough job ahead of it in making enough sound loans to take up the appropriation. It is only natural that REA is going to press every advantage, including the squeezing of Independent telephone companies, as we already know.

But it all goes to show thoughtful telephone men just what they are up against in any controversy with a governmental agency engaged in a form of commercial activity. Because of inherent subsidies, such as free publicity and low-cost money, such governmentally-sponsored activity always enjoys a great commercial advantage. Whether it is an unfair advantage depends, of course, upon one's opinion of the objectives involved and other surrounding circumstances.

Before leaving REA, it might be of interest to note that the REA boss is considering making class distinctions in rates for power service between share croppers and their landlords. He said to his listeners in Augusta, Ark.:

"I believe the economic base will gradually rise in any community where benefits of low-cost electricity are available. So far as landlords and sharecroppers are concerned, it is possible that the landlord may have to pay the minimum rate, but I believe a rate can be worked out that will make service generally available to tenants. You remember the question of ownership of property as a requisite to citizenship and its benefits was thrashed out at a constitutional convention a long time ago."

There would probably be a number of complications, regulatory and otherwise, in carrying out such a plan whereby the landlord would pay a basic minimum power rate and the tenant would pay only for excess usage. But it might be possible to work the thing out by voluntary agreement. Anyhow, it's an interesting suggestion.

Meanwhile, if Senator Sheppard of Texas is able to put over his bill (at the next session of Congress) to have the RFC grant relief to rural telephone companies to take care of eliminating inductive interference, maybe the telephone companies would be disposed to mark their poles "RFC" or anything else by way of gratitude.

SPEAKING of the current crop of hot primary fights, a letter from a reader of this department asks two questions in which other readers may be interested as well: (1) "What is there to this New Deal 'purge' and what will come of it?" (2) "If Roosevelt isn't going to be reelected in 1940, who will?"

Well, that is a pretty big order, but undoubtedly telephone men are as vitally concerned as any other industrial group, so here goes:

There is, of course, such a thing as a "purge"—meaning a concerted intraparty effort by the administration to dislodge members of Congress and other Democratic office-holders who have opposed the New Deal to any appreciable extent. It is not generally realized that there is also such a thing as a "counter purge"—meaning an effort by old-line Democrats to wrest control of the party away from New Dealers.

The "counter purge" is not as well organized or coordinated as the "purge" because it springs more or less spontaneously from the desire of some anti-New Dealer to obtain an office now held by one of the Faithful. Each anti-New Dealer, in other words, is paddling his own canoe, whereas the "purge" is being centrally conducted on a national basis with headquarters in Washington.

There is no need here to go into the details of how field WPA officials or AAA officers or others controlling Federal benefits have coordinated their efforts to assist the "purge." The newspapers are too full of that to bother. This department will confine itself to results and outlook. How is the "purge" coming along—also the "counter purge?"

THE ANSWER is that neither one nor the other is doing so hot—as the saying goes. Neither can really chalk up an impressive victory of actually *throwing out somebody who was already in.* After all, that is the real test. When an incumbent, whether he be a New Dealer or an anti-New Dealer, fights off a challenge from within his party to his seat in Congress, that should be taken as a matter of course. It has always been so. The man who holds office always has an advantage over the fellow who doesn't have one—and that goes for both sides of this "purge" business.

The degree of effort expended in this "purge" campaign has been relative in each case, especially of recent months. The New Deal master minds realize that it is dangerous to risk the President's own prestige in any battles where the odds are against New Deal victory. They realized this after the costly blunder in Indiana, where certain master minds got their fingers burnt trying to unseat Senator Van Nuys (commonly charged by ardent New Dealers to be a double cross from the McNutt machine).

Since then the President has spoken up only where the chances of victory are either assured or where the President's influence is likely to swing the balance, as in the recent Kentucky primary. Where the outlook is less cheerful, the President confines himself to calling somebody "my old friend" or some lesser administration figure is commissioned to say a few kind

(*Continued on Page* 28)

THEY BUILDED BETTER THAN THEY KNEW

SOME forty years ago the pioneers of the Strowger system of automatic telephony produced their first switching mechanism for the automatic connection of subscribers. It operated upon the decimal principle and it appeared to its originators to be fundamentally sound, although naturally capable of improvement as automatic telephony developed.

Just how sound the principle was is evidenced by the introduction into service of the new type 32A Selector, for this mechanism, which may without exaggeration be described as one of the most important contributions yet made to automatic telephone switching methods, operates upon the same decimal basis of subscriber selection first enunciated forty years ago. This retention of the original principle was by no means regarded as essential when the technicians at Strowger Works commenced their efforts in 1930, to produce a mechanism which would be superior both in operating characteristics and in constuction to the highly efficient Strowger Selectors already in service. Those concerned were so bent upon achieving their end that they were prepared to abandon the principle which had proved so successful in the past and to embark upon a new system of operation if one could be found which was definitely superior from every viewpoint.

But their early investigation and the intensive research and exhaustive tests which followed only serve to prove that the Strowger principle of decimal working coupled with a selector operating upon the two-motion principle is unsurpassed by any other. Two triumphs are thus typified in the new 32A Strowger Selector. It represents the continued superiority of a forty years old principle and the successful culmination to six years of research and development.

When the lumbering, creaking waggon trains wound their way into the open lands the making of homes was the thought which drove the settlers onward into an unknown country. The building up of a great nation was then something to be talked of around the evening fire, when the work of the day was done and rest-time left imagination free to dwell upon the dreams of to-morrow. The "baseless fabric" of these visions has materialised into great cities and vast communities, relying for their continued existence largely upon facile intercommunication. Automatic telephony meets this need, and also, by a record of continual development and progress, provides evidence that the pioneer spirit is still alive.

AUTOMATIC TELEPHONE & ELECTRIC CO. LTD

THE STROWGER 32A SELECTOR

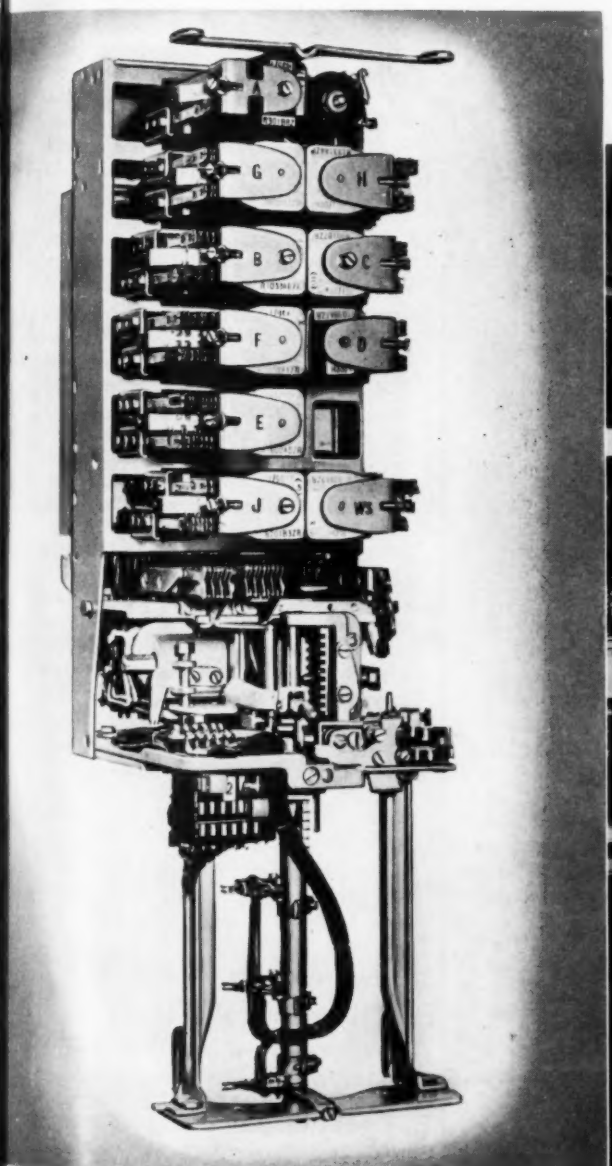
(Standardized by the British Post Office as type 2,000)

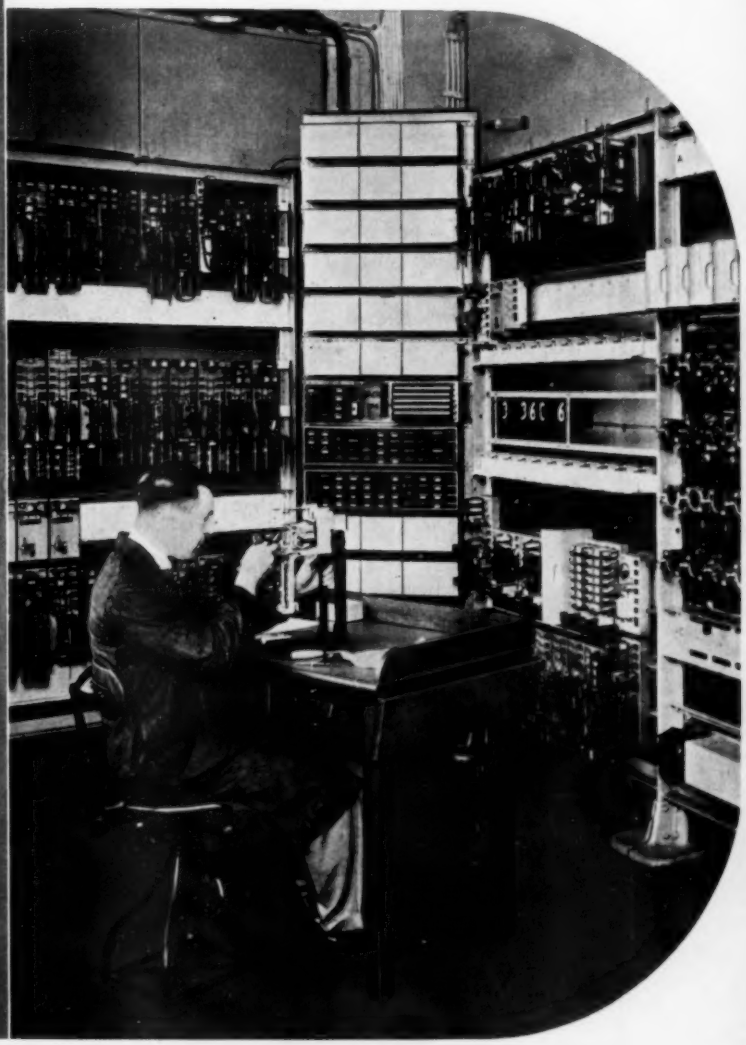
The improvements which the Strowger 32A Selector embodies cover both its operation and its construction. The hunting speed is now almost twice that attained by the previous Strowger selector. It is possible for any one of 2,200 contacts to be selected in 600 milli-seconds—a performance, incidentally, beyond the capacity of any other selector mechanism. The 32A Selector also operates over wider limits of impulse speed and ratio variation. An operational advantage which combines with a constructional improvement is the arrangement made for the return of the wiper carriage to normal after contact selection. The release action is effected by rotary movement in the forward direction off the level and then vertically downwards and back to the normal position, and there is consequently no need for a separate release magnet.

The cubic capacity of the selector is now reduced to approximately 60 per cent of that of the previous model, with resultant economies becoming possible in floor space and building costs. Yet, although of less dimensions, the selector is of such advanced design, and is so generally flexible, that it can accommodate three times as many contact banks as its larger predecessor, and it is even more robust.

The 32A Selector can be "jacked-in" with a single movement, it being unnecessary to use nuts or screws. Curved "tongues" are fitted at the foot of each of the brackets on the frame extension, and these fit into slots in the cradles attached to the racks. When in position the selector mechanism seats into the cradle, and as the contact banks are themselves mounted on the cradle the selector can be removed or replaced without disturbing the banks or bank wiring, and without any need for re-adjustment of the wipers.

The majority of adjustments to the selector itself can be effected whilst it is in position, and this, combined with the fine limits to which the component parts are manufactured, effects a considerable reduction in maintenance costs.





NORFOLK HOUSE • NORFOLK STREET • LONDON W. C. 2, ENGLAND
Cables "Autelco, London"
STROWGER WORKS • LIVERPOOL 7 • ENGLAND

(*Concluded from Page* 25)
words in hope that it might do some good.

To date, the results have followed pretty closely along the lines just suggested. The fellows who are already in have stayed in, regardless of whether they were labeled as pro or anti-New Deal. Here's the list: Senators Pepper of Florida, Thomas of Oklahoma, Barkley of Kentucky, and Congressman O'Connell of Montana. These 100 per cent New Dealers all fought off serious anti-New Deal opposition. On the other hand, Senators Van Nuys of Indiana, Adams of Colorado, Clark of Missouri, and Gillette of Iowa, and Representative Smith of Virginia were less than 100 per cent incumbents who survived purge efforts.

This leaves two instances in which the incumbents have been defeated in the primary. Representative Maverick of Texas was probably a bona fide victim of the "counter purge," although a CIO-AFL labor issue complicated the result. Senator Berry of Tennessee was crushed in a battle between rival machines in which the New Deal was hardly an issue.

And so, predicting the future by the showing so far, your correspondent believes that both the "purge" and "counter purge" are doomed to failure for the most part. Specifically, this would mean victory in forthcoming primaries for the following Senators who have been marked for death by the New Deal "purge" strategists: Tydings of Maryland, George of Georgia, Smith of South Carolina, and McCarran of Nevada. By the same token we may expect such New Deal champions as McAdoo of California, Overton of Louisiana, and Bulkley of Ohio to survive counter purge opposition.

ON THE SUBJECT of the next President, your correspondent must beg off with merely a recital of names most frequently mentioned for both party nominations. It is too early to do any more than guess at the result because the biggest question mark is President Roosevelt's own attitude on a third term. And this writer feels, somehow, that President Roosevelt has not resolved that question even in his own mind as yet and will not reach a conclusion until the November elections tell the story of how the New Deal fares with public favor.

For one thing, it is perfectly obvious from the things the inner circle New Dealers are saying and doing that the President is leaving no stone unturned to keep the pathway to a third term movement open, if he decides to go after it. Even if he finally decides not to do it, such a course is only following an old orthodox rule of good politics—keep 'em guessing.

Assuming, however, that the President does not run again, here are the names most commonly mentioned in the order of frequency: Cordell Hull (a strong compromise candidate to seal the rift between the New Dealers and old-line Democrats—handicapped by advanced age), Harry Hopkins (probably the favorite of the New Deal left-wingers), Secretary of Agriculture Wallace (an early hopeful encouraged by the New Deal, but lately beginning to fade), Senator Clark of Missouri (rumored to be the favorite of a Garner-Byrd-anti-New Deal combination to seize control of the Democratic party), Paul McNutt of Indiana (still the most prominent "favorite son" variety but wilting of late), Governor Earle of Pennsylvania (slight chance because of recent local developments).

On the Republican side the pickings are quite scanty. Senator Vandenberg of Michigan is the leader but the engaging and ingenious Congressman Bruce Barton of New York is pressing hard as a business man's favorite. Glenn Frank is spoken of as a possibility, although handicapped by his professorial background. Some say if District Attorney Thomas Dewey of New York City should make the governorship of New York this fall, his would also be a name to reckon with in 1940.

Gov. Phil La Follette of Wisconsin seems to have the third party field to himself if he wants it. He probably won't.

SOOT AND CINDERS

By MISS ANNE BARNES

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

HETTY STONE often wondered why she did not get on well with her operators, her subscribers, other operators and their subscribers. When she attended a district traffic meeting with her operators (and she always went along to keep them from talking about her, her night operator told the Hocum night operator) they sat mutely in a row, and their only sign of interest was shown in their glances at one another when Hetty entered into a discussion. This seemed to disconcert her and we felt that all was not well at the Crystal City office.

Most of us knew that the exchange Hetty and her operators hailed from was modern in every way; in fact, the most up-to-date exchange in the state.

We all felt very sorry for Hetty and her operators, too, and we would have tried to help them if we had known a proper approach. But we held back because our advice might be as out of order as that of a 1910 model car (if it could talk) to a 1938 limousine.

But the truth eventually leaked out: Hetty was so given to criticizing that no one did anything right according to her. She built a mountain out of every mole-hill mistake that anyone made. She would prove her point regardless of the ill feeling she created for herself. She seemed to glory in proving her point.

Hetty reminds me of what Longfellow said of people like her:

"Some critics are like chimney sweepers; they put out the fire below, and frighten the swallows from their nests above; they scrape a long time in the chimney, cover themselves with soot, and bring nothing away but a bag of cinders, and they sing out from the top of the house as if they had built it."

▼ ▼

Increase of Telephones in Wisconsin

At the beginning of 1938, the number of Bell System and Bell connecting telephones in Wisconsin totaled about 530,000. This represents an increase over 1937 of approximately 25,000.

Here and There in the Field

Iowans Enjoy Picnic at West Lake Okobodji

A group of about 27 Iowa telephone men, their wives and sweethearts, motored to the Methodist camp grounds on West Okobodji Lake, Dickinson county, in northwestern Iowa, July 20, for an all-day outing and picnic. The get-together was planned under the direction of W. H. Daubendiek of West Bend.

The telephone men had a brief and informal business session during the course of which they discussed the matter of toll compensation. Iowa telephone men, said Mr. Daubendek in commenting upon the discussion, are beginning to feel that they are entitled to a new toll compensation schedule.

At noon the entire party assembled around the picnic tables and partook with hearty appetites of the good things prepared by the women. The afternoon was spent in swimming, boating and fishing. A motion picture, taken during the day's activities by W. H. Daubendiek, will be shown to Iowa telephone men in the near future.

▼ ▼

Prominent Writer Director of Independent Company

Announcement was made recently by C. F. Mason, president of the Associated Telephone Co., Ltd., of Santa Monica, Calif., of the election of Irwin S. Cobb, prominent writer and motion picture actor, to the directorate of the company. Commenting upon his appointment Mr. Mason said:

"Mr. Cobb for many years has been admired and loved for his literary and motion picture accomplishments, but it may not be generally known that he is also recognized in the field of business. Mr. Cobb is already on the board of directors of a bank and we welcome him to our board in the belief that his experience and understanding will be of great value to the operation of this company."

▼ ▼

Advertising Advocates Meeting Conditions as They Are

Doing its bit towards promotion of the "Sales Means Jobs" campaign, the Jamestown (N. Y.) Telephone Corp., of which John H. Wright is president, ran a two-column, page-length advertisement in both of Jamestown's daily papers on July 26.

The advertisement, written by George T. Trundle, Jr., of the Trundle Engineering Co., Cleveland, Ohio, was entitled "The Man by the Side of the Road Bets on Uncle Sam." As undoubtedly many telephone managers will be interested in this novel advertisement of the Jamestown Telephone Corp., the text of it follows:

THERE WAS a man who lived by the side of the road, and he sold hot dogs. He was hard of hearing, so he had no radio. He had trouble with his eyes, so he read no newspapers.

But he sold *good* hot dogs. He put signs up on the highway telling how good they were.

He stood on the side of the road and cried, "Buy a hot dog, mister?" And people bought.

He increased his meat and bun order. He bought a bigger stove, to take care of his trade. He finally got his son home from college to help him.

But then something happened. His son said: "Father, haven't you been listening to the radio? Haven't you been reading the newspapers? There's a big depression on. The European situation is terrible. The domestic situation is worse. Everything's going to pot."

Whereupon the father thought: "Well, my son's been to college, he reads the papers and he listens to the radio, and he ought to know."

So the father cut down on his meat and bun orders, took down his advertising signs, and no longer bothered to stand out on the highway to sell his hot dogs. And his hot dog sales fell off almost overnight.

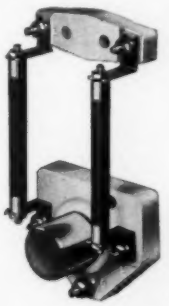
"You're right, son," the father said

Answers to Traffic Questions on Page 20

1. Please refer to the preface for answer.
2. One call should be passed at a time unless they are sequence calls.
3. Yes.
4. Explain to the subscriber that no record is kept of incoming long distance calls.
5. Yes. The standard practice specifies that the operator secure the acceptance of the charge on calls charged to a third station.

SANDS

THE TYPE 12 SUB-STATION PROTECTOR



This popular type of indoor protector consists of two blocks of porcelain—the line end being equipped with fuse clips only while the other end has fuse clips, ground connection and a well for the discharge blocks. Regularly equipped with seven-ampere, fiber-type fuses with nutted ends, and Type 2105 discharge blocks. Write for further information regarding this and other Sands protective devices.

SANDS PROTECTION EQUIPMENT *is made by:*

AUTOMATIC ELECTRIC COMPANY

Distributed by:
AMERICAN AUTOMATIC ELECTRIC SALES CO.
1033 West Van Buren Street, Chicago

Export Distributors:
AUTOMATIC ELECTRIC SALES COMPANY, LTD.
Chicago

The
NEW BATTERY
to meet today's telephone demands

Season after season, month after month, long after the time you expect ordinary telephone batteries to signal feebly for replacement, Ray-O-Vacs carry on, full-powered and hearty. They cost no more---but how they cut down replacement costs.

RAY-O-VAC COMPANY
Formerly FRENCH BATTERY CO.
MADISON - WISCONSIN

to his boy. "We certainly *are* in the middle of a great depression."

This is what has happened to American business. Isn't it possible that our perfect system of communication has been wrongly used? A large share of what has currently been happening is bad news. And that is all that we have been getting. The good things in the world are not news. They are not news because they have been with us right along. Consequently, neither the newspapers nor the radio say anything about them.

The radio and the papers cry about war threats in Europe; but they say nothing about enduring peace in the United States. They tell us that business is down; but they don't tell us that fair farm crops this year are more widely distributed than has been the case for years.

They tell us that Washington is threatening a lot of regulatory laws; but they say nothing about the Bill of Rights and the Constitution, which still guarantee a degree of freedom in the conduct of business greater than that in practically any other country in the world.

You can actually talk a man into a sickbed. Business has been talked into a sickbed. This is not surprising—in view of the governmental measures and the many other difficulties which this year have hit business.

But in the meantime there are hundreds of business men, heads of small businesses, who refuse to be argued into a sickbed by the radio, the newspapers, or anything else.

They are out to get business—and they are *getting* business. In every industrial field, you will find a certain number of small or medium size businesses who are plowing ahead and making money today. These men are not permitting themselves to be talked out of sales by bad news and by professional pessimists.

We have 130,000,000 people in this country. All of these people want something . . . and all of them will buy what they want . . . if they can.

The desire to buy is there. In fact, there is literally no limit to human desires. Everybody wants something.

If people bought only what they actually needed to survive, there would be very little business in this country. Most business comes through manufacturing, merchandising and selling things that people do not actually need to live . . . such as radios, automobiles, washing machines. artificial flowers, gumdrops, beer, waffles, and Charlie McCarthy dolls. Every person who buys more than the bare necessities is a contributing factor in business.

Suppose we take the worst possible view of purchasing power and make allowance for all the people who are on WPA and relief . . . who can buy only the so-called necessities. Even then we find that practically every family in the United States can buy *something*. And that many families can buy a great many things . . . if they wish to buy them.

This, inevitably, brings us back to a basic fact which has been true for many years, regardless of the administration in power, regardless of its policies . . . a fact of the greatest importance to American business . . . the United States of America is still the richest market in the world!

Meanwhile, what have the consumers of the United States been doing—the people who constitute the great general public, which is our ultimate market?

They have kept right on buying. They have kept on buying long after the producers of this country quit buying.

Owners of automobiles have been buying gasoline long after automobile manufacturers quit buying steel. Gasoline consumption for the first three months this year was more than 3 per cent greater than last year.

Furthermore, people have been buying automobiles faster than automobiles have been made. For the first four months of this year, retail sales of motor vehicles amounted to 765,173 units, while factory sales amounted to only 698,809, according to the Automobile Manufacturers' Association.

Retail sales throughout the country are illuminating. For the first four months this year they were only 7.9 per cent behind the same months last year . . . according to United States Department of Commerce figures.

Of course, these are discouraging times. But are we really so badly off?

Let's make a swift, unique comparison.

In 1929 the American public spent about $2,000,000,000 for homes and about $3,000,000,000 for automobiles.

In 1937 the American public spent about $500,000,000 for family homes, about $2,750,000,000 for automobiles, and at least $2,400,000,000 for drinks—not including soft drinks and wines.

Evidence of the fact that our people had money to spend and spent it during 1936 and 1937 will be found in the following per capita figures:

	1936	1937
Home building	$ 4.30	$ 3.40
Passenger car	16.40	18.70
Liquor	15.60	18.00

Theoretically, America spent no money on drinks in '29. But in '37 we spent on drinks, homes and autos more than we spent on autos and homes in '29! And '29 was the most prosperous year in the history of this country.

(*Please turn to page* 42)

Financial Operating News and Data

Bell System July Station Loss Smaller

The American Telephone & Telegraph Co. reports a loss during July of 6,850 stations by its principal operating subsidiaries of the Bell System. Comparing with a decrease of 18,000 in June, last month's figure afforded a definite indication of general business improvement, the Wall Street Journal states. Normally, under the influence of the midsummer lull in commercial activities, the July drop in installations runs substantially above the June disconnections.

Meanwhile, further evidence of trade acceleration has been afforded by a pick-up in the volume of long distance business of the Bell System. During the first six months of 1938 it showed an average decrease of 3 per cent from the like 1937 period. Since July 1, this year, however, the loss in long lines' business from a year ago has been considerably pared down.

The small extent of the July decrease in installations as compared with June was contrary to earlier expectations of A. T. & T. officials, who had anticipated a drop somewhat in excess of the June showing. However, in the case of New York Telephone Co., largest operating unit in the Bell System, station development is lagging below the levels shown in some other parts of the country, notably in the South and Southwest.

The July loss in stations reduced the Bell System's gain in installations for the first seven months of 1938 to 128,350 telephones. This compared with an increase of 551,300 in the corresponding 1937 months. In July, 1937, a gain of 22,700 stations was shown. But at that time the development of new business was unusually favorable under the influence of the recovery movement in general trade which reached its climax in the summer of 1937.

▼ ▼

Peoples Company of Butler, Pa., Has Good Year

The Peoples Telephone Corp., of Butler, Pa., reported a total of 8,621 stations in service December 31, 1937, only 49 less than at the peak of its development reached at the close of 1929 when it had 8,670 telephones in service. In the city of Butler, however, the company has very substantially surpassed its previous high, with 6,688 stations in service at the close of 1937 as compared with 6,365 at the close of 1930, the previous peak for that city. Last year there was a net gain of 574 stations. This compares with a gain of 488 in 1936, 293 in 1935, 184 in 1934 and a loss of 354 stations in 1933.

John H. Wright, president, in his annual report to the stockholders, directs attention to the fact that local service revenues totaled $275,708 in 1937, an increase of 6.94 per cent over 1936. Toll revenues amounted to $58,673, an increase of 12.81 per cent. Operating expenses were $221,227, an increase of 5.32 per cent over 1936. Taxes assignable to operations amounted to $36,275, an increase of 24.68 per cent over 1936 and an increase of 102.50 over 1929.

The income available for fixed charges amounted to $92,117, and the balance net income to $65,962. After the payment of 6 per cent cumulative preferred stock dividends of 6 per cent and common stock dividends of 8 per cent, the unappropriated surplus as of December 31, 1937, was $297,268. This compares with an unappropriated surplus of $280,579, as of January 1, 1937.

An expenditure of $164,872 was made during 1937 for extensions, replacements and renewals, including dial central office and telephone installations at Chicora and Connoquenessing.

The company's assets, totalling $1,967,122, include telephone plant valued at $1,417,832 and real estate with a book value of $261,787. The liabilities include $462,300 of common stock, $230,000 of preferred stock, funded debt in the amount of $600,000, depreciation reserve of $241,923, and unappropriated surplus in the amount of $297,268.

▼ ▼

Annual Report of Manitoba Telephone System

The Manitoba Telephone System reported for the year ended November 30, 1937, a total of 65,837 telephones as compared with 62,152 at the close of the preceding fiscal year, a net gain of 3,685 telephones. Telephones in Winnipeg increased in that period from 43,328 to 45,745; rural telephones from 9,948 to 10,812 and urban subscribers in the province of Manitoba (outside of Winnipeg) from 8,629 to 9,029. Toll stations increased from 247 to 251.

Gross revenues for 1937 amounted to $3,055,306, an increase of $182,985 over 1936. Exchange revenues were $2,470,847; and toll revenues, $550,022, an increase of $85,983. Total operating expenses were $2,912,023, an increase

Lightning Strikes Twice in Same Place; 3 Killed

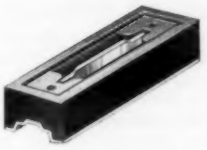
(Picture on back page.)

New York, Aug. 7.—[Special.]—In the middle of Jacob Riis park beach, in the nearby Rockaways, only a few hundred feet from where three persons were killed just a year ago by lightning, death struck from the skies today and took three more lives among the 80,000 persons on the beach. Twenty others were felled by the bolt and five of them required hospital treatment for shock. The dead were Cesare Cito, 35 years old; Peter Cava, 27, and his wife, Mary, 24.

Chicago Daily Tribune—August 8, 1938

LIGHTNING *DOES* STRIKE TWICE IN SAME PLACE

To protect your lines and equipment against lightning hazards and interrupted service, install Cook Protection.



All Cook Lightning Arresters are equipped with True Gap Dischargers that do not permanently ground the line.

BE SAFE—ALWAYS SPECIFY

COOK

TERMINAL AND PROTECTION EQUIPMENT

COOK ELECTRIC CO.

2700 Southport Ave. Chicago

WHY KLEINS?

No. 201 N. E. Klein Side Cutting Plier. "Streamlined" for use in confined spaces.

Good workmen demand good tools. In the hands of men who know—everywhere—the pliers are invariably Kleins. Only the keen, hand-honed, perfectly matched cutting knives of Klein Pliers—only the comfortable spring grip in the Klein handles—only the general all around quality that is an inherent part of every Klein Plier can satisfy men whose work demands the best in tools. This, perhaps, explains why Klein Pliers are the standard of quality by which others are judged—why the name Klein has stood for maximum quality, "since 1857."

DISTRIBUTED THROUGH JOBBERS

Foreign Distributor: International Standard Electric Corp., New York

---

The four pamphlets listed below will be sent without charge to anyone interested. Check the ones you want:

- ☐ Safety for the Pole Climber.
- ☐ Specifications on Linemen's Belts and Safety Straps.
- ☐ The Safety Factor on Linemen's Leather Goods.
- ☐ Pocket Tool Guide.

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill. U.S.A.

3200 BELMONT AVENUE

of $54,442. Net earnings before fixed charges showed an improvement of 13 per cent over the preceding year.

The surplus for the year, after allowing $60,000 for intangible capital and $15,000 for special reserve, was $68,283. The accumulated surplus as of November 30, 1937, was $133,099.

J. E. Lowry, commissioner of telephones, reports that during the past year plant expenditures amounting to $654,725 were made in Winnipeg and the province, $270,612 being capital expenditures and $384,113 replacements. He adds that rehabilitation of plant is gradually being carried out with the result that during the past 15 years 85 per cent of the system's toll lines and more than 40 per cent of the rural plant has been rebuilt.

▼ ▼

Annual Report of Home Company of Ridgway, Pa.

The Home Telephone Co., of Ridgway, Pa., reported that at the close of 1937 it had 3,791 telephones in service, within 2.2 per cent of the peak of 3,875 reached in April, 1930. There was a net increase of 256 stations in 1937, as compared with an increase of 131 in 1936.

Operating revenues, after deducting uncollectibles, amounted to $165,022, as compared with $155,823 in 1936. Operating expenses of $107,804 for last year compare with $99,297 for 1936. The net operating income of $42,739 represents a decrease of $4,176 from the net of $47,318 for 1936.

Interest and fixed charges for 1937 amounted to $14,997; this was $4,449 less than in 1936, due principally to the refunding of bonds at a reduced interest rate. After preferred stock dividends, the balance available for dividends on common stock and reinvestment was $29,234. Of this amount, $6,750 was used for dividends on common stock and the balance of $13,484 added to surplus, bringing the unappropriated surplus as of December 31, 1937, up to $47,778, an increase of $14,034 over the preceding year.

The total assets at the close of 1937 were $857,367, as compared with $837,032 for the preceding year. The investment in telephone plant was $725,421, as compared with $709,356 in 1936.

The liabilities of $857,367 include, in addition to an unappropriated surplus of $47,778: Preferred and common capital stock, $300,000; long-term debt, $332,000; current and accrued liabilities, $46,740; reserve for depreciation, $117,654.

The Home company of Ridgway operates six central offices and 17 private branch exchanges. It has 5,419 total miles of wire, 3,651 miles of which are encased in cable and 347 miles underground. There are 7,421 poles in its outside plant.

Of the 62 employes, there are 25 men and 37 women, with a total company payroll expenditure of $59,028. During 1937 there was a daily average of 20,612 exchange messages, while the total number of outward toll messages for the year was 158,813.

▼ ▼

Illinois Bell Reports Gain for Second Quarter

Although the net income of the Illinois Bell Telephone Co. for the six months ended June 30, 1938, showed a substantial decline as compared with a similar period last year, the indicated net income for the June quarter shows a gain over the first quarter of 1938.

The net income for the six months ended June 30, 1938, declined to $4,968,914 from $6,395,583 for the 1937 period.

Operating revenues for the six months period declined from $43,296,748 to $43,223,168, and operating expenses increased from $28,999,615 to $30,215,674. Taxes increased from $6,914,137 to $7,081,725.

Total income available for interest declined from $7,387,987 to $5,930,240. After payment of dividends the company reported a deficit of $1,031,086, compared with a net income of $395,563 last year.

Indicated net income for the June quarter, however, amounted to $2,775,120, compared with a net of $2,193,794 in the preceding quarter and a net of $3,281,128 for the June quarter of last year.

▼ ▼

New England Bell Reports Increase for Six Months

The New England Telephone & Telegraph Co. reports, for the six months ended June 30, 1938, net income of $4,295,468 after charges and federal income taxes, equivalent to $3.22 a share (par $100) on 1,333,458 shares of capital stock. This compares with $4,235,457 or $3.18 a share in first six months of 1937.

For the quarter ended June 30, last, the indicated net income was $2,446,891 after charges and federal income taxes, equal to $1.83 a share, comparing with $2,181,789 or $1.64 a share in June quarter of 1937.

▼ ▼

Cincinnati Bell Earnings Show Increase

The Cincinnati & Suburban Bell Telephone Co. reports $1,275,664 net profit for the six months ended June 30, equal to $2.32 a common share. This compares with $1,094,433, or $1.99 a share earned on common stock in the first half of 1937.

Personal Notes About Telephone Men

HENRY W. SAUTER, Valparaiso, Ind., who has been local manager of the Indiana Associated Telephone Corp., recently assumed the duties of manager of the Valparaiso district.

He succeeds A. R. Bone, who went to Valparaiso in October, 1936, as president and general manager of the Northwestern Indiana Telephone Co., and in December, 1937, became district manager when the Indiana Associated Telephone Corp. took over the Northwestern Indiana Telephone Co.

Mr. Sauter has been acting as Valparaiso local manager since June 1, 1937. He has been with the company since 1915. Prior to that he was with the Illinois Bell company, in Gary, Ind. For 34 years he has been identified with the telephone business.

▼

STANLEY S. OUTCALT retired August 1 as general manager of the Clinton Telephone Co., Wilmington, Ohio, after 39 years as general manager and 11 years as vice-president of the company.

Ill health, caused by a goitre removed by an operation recently, motivated Mr. Outcalt's decision to retire from active management of the company. He has been the only manager the telephone company has had.

When the company began operation on August 1, 1899, Mr. Outcalt was chosen to serve the company which had a modest 267 subscribers on its lines. Through the years, the efforts of Mr. Outcalt and his associates have built the company to a point where it now has 3,200 subscribers in the county.

▼

F. A. dePEYSTER, of Chicago, relinquished his duties as general traffic manager, state area, Illinois Bell Telephone Co., on July 1, to take over general supervision of the state area's "open house" project. He had headed the state area traffic department since March, 1928, when the company's area organization was set up, and has been engaged in traffic work 44 years.

Mr. dePeyster started in telephone work in 1894 as a night operator in the long lines department of the American Telephone & Telegraph Co. in New York City. A year later he was transferred to Boston, where he served in various capacities until 1903, when he went to Indianapolis as assistant traffic engineer for the Central Union Telephone Co.

In 1911 Mr. dePeyster went to Columbus, Ohio, as traffic superintendent for the Central Union company, and later in the same year he was sent to Chicago as assistant general traffic superintendent for the central group of Bell telephone companies.

In 1912 he was placed in charge of the traffic department in the Chicago Telephone Co.'s suburban division. In 1916 he was appointed traffic superintendent for Chicago, remaining in that position until the formation of the area organization.

Under Mr. dePeyster's direction, open house at various exchanges of the Illinois Bell company is expected to be inaugurated in September or early October, to offer customers, on special days or weeks, the opportunity of seeing telephone people at work. A feature of the open house in the different exchanges will be the "hear-your-own-voice" equipment.

▼

R. T. HALLADAY, since 1931 traffic superintendent in the Franklin district of the Illinois Bell Telephone Co., has been appointed traffic superintendent of the central division. He has been employed by the Illinois Bell since 1922, following his graduation from the University of Chicago.

OBITUARY

JOHN M. PARRETT, treasurer and general manager of the Princeton (Ind.) Telephone Co., died at a hospital in Battle Creek, Mich., August 4. Mr. Parrett was 65 years of age and had been actively connected with the telephone company since the death of his brother Fred, about nine years ago.

Prior to his telephone connections Mr. Parrett was identified with the power and light industry of southern Indiana. He was active in the community affairs of Princeton and a member of Rotary International. For several years he had served as president of the Southwestern district association of the Indiana Telephone Association. Surviving are the widow, two sons and a daughter.

▼

GEORGE FORREST, who built one of the earliest telephone sets after Alexander Graham Bell had invented the instrument, died recently at Bedford, Mass., at the age of 92.

HIGHWAY

Specially Designed for

THE SMALL EXCHANGE

Highway SL Body

Highway LI Body

The Highway Type LI Body was primarily designed for installation work but is used for many service jobs.

The Highway Type SL Body is known as a sectionman's or combinationman's service body and is admirably adapted to all of the various types of service in and around small exchanges.

Both bodies are made of rust-resisting metal with completely equipped interiors including trays, drawers and compartments to carry materials and tools used in all types of service work.

Both bodies designed by telephone engineers. Every single detail is the result of years of study of telephone company requirements.

We invite your inquiry for further details and prices.

Incidentally . . . telephone people will be surprised at the low price at which this equipment is available.

HIGHWAY TRAILER CO.
EDGERTON WISCONSIN

Commission and Court Activities

Wisconsin Companies Held Fully Under FCC

The Federal Communications Commission August 3 announced final denial of the application of the North-West Telephone Co., Tomah, Wis., and the Milton & Milton Junction Telephone Co., Milton Junction, Wis., for exemption from provisions of the 1934 Communications Act.

In both cases, the commission held that the Wisconsin Telephone Co., through stock ownership and through the indebtedness of John S. Allen, president of both companies, to the Wisconsin Telephone Co., "unquestionably" controls the two companies. Both companies have physical connections with the Wisconsin company for long distance service.

In a 17,000-word history of the companies and of the cases before the commission, the FCC points out that it first ordered the companies to file required reports on November 20, 1935, since when the cases have gone through a series of hearings and arguments.

The Wisconsin Public Service Commission entered the case to argue that only it should regulate the two companies.

The FCC has mailed orders to the two companies to comply with all provisions of the 1934 act applicable to wire telephone companies and all orders of the commission, and simultaneously notified the Wisconsin commission of its orders.

▼ ▼

Accounting System for Class A and B Companies

Samuel Meisels, an accountant for the Illinois Commerce Commission, testified at a hearing in Springfield July 19 that he had spent 17 days in the examination of the books and records of one Class A company. Based on this examination, he gave his opinion that the original cost and continuing property records could be determined from the books and records of that company. The hearing was continued until September 14 in Chicago, for cross-examination and argument.

The figures Mr. Meisels presented were not in detail as called for by the proposed system of accounts, and he admitted that, in the case of some retirements, estimates may be required from an engineer.

The cost to the company examined would not exceed $1.00 a station for setting up the original records and five cents a station annually for maintaining the records, Mr. Meisels stated.

▼ ▼

Commission Disapproves Service Contract

The New York Public Service Commission on July 7 disapproved a proposed contract for certain supervisory services to be entered into between the Upstate Telephone Corp. of New York, and Associated Telephone Utilities Co., Inc.

At the same time the commission approved of a journal entry to be made in the books of the company to record charges to be made for services heretofore rendered by the service company to the petitioning company and

COMING CONVENTIONS

The Illinois Telephone Association, Hotel Pere Marquette, Peoria, September 21, 22 and 23.

South Dakota Telephone Association, Mitchell, October 5 and 6.

United States Independent Telephone Association, Hotel Stevens, Chicago, October 18, 19, 20 and 21.

Independent Pioneer Telephone Association of the United States, Hotel Stevens, Chicago, Thursday, October 20.

Virginia Independent Telephone Association, Hotel John Marshall, Richmond, November 3 and 4.

Tennessee Independent Telephone Association, Hermitage Hotel, Nashville, November 14-15.

Alabama Independent Telephone Association, Jefferson Davis Hotel, Montgomery, November 28 and 29.

NOW is the time to create NEW BUSINESS

Telephone pay stations have definitely proven their revenue-producing possibilities over the past 49 years. But today, more than ever before, alert telephone operators are realizing the tremendous potential profits (and all extra revenue) existing for them with Gray equipment. Every drug store, hotel, gas station, bus and railroad depot, cigar store, lodge hall, department store, library . . . in fact, wherever doors are open to the public, is an excellent location for a pay station. Whatever your requirements Gray has the exact equipment for your company.

Try this time-tested and proven method of obtaining extra business.

GRAY TELEPHONE PAY STATION CO.
HARTFORD, CONN.

Order Direct or Through
AMERICAN AUTOMATIC ELECTRIC SALES CO., Chicago.
GRAYBAR ELECTRIC CO., INC., New York, N. Y.
KELLOGG SWITCHBOARD & SUPPLY CO., Chicago.
LEICH SALES CORPORATION, 222 W. Adams Street, Chicago, Ill.
STROMBERG-CARLSON TELEPHONE MFG. CO., Rochester.
CANADIAN TELEPHONES & SUPPLIES LIMITED, Toronto, Montreal, Winnipeg and Vancouver.
NORTHERN ELECTRIC CO., LTD., Halifax, Montreal,

GRAY TELEPHONE PAY STATIONS

to its constituent companies. This entry shows a total of $2,942.36 for services performed for the Upstate company and its constituent companies by Associated Telephone Utilities, which is concluded to be a reasonable charge for performing the services rendered.

A report approved by the commission states that the proposed contract in the form submitted and in general would permit of the future allocation of other than direct and ascertainable costs upon a basis which has no direct or ascertainable relation to the services performed for the operating company and is a departure from the reasonable cost standard prescribed by state statute. The report concludes that the contract should, therefore, be disapproved.

The Upstate company is one of the largest operating companies of the system of the General Telephone Corp. The Associated Telephone Utilities Co., Inc., was organized for the purpose of rendering certain supervisory and financial service at cost to the operating companies which are owned directly or indirectly by the General corporation.

▼ ▼

Kentucky Exchange Owner Sues REA Body

What appears to be the first out-and-out damage suit filed against an REA cooperative for inductive interference with rural telephone lines has been started in the Allen County Circuit Court at Scottsville, Ky. R. O. Meador, the owner of a small telephone exchange at Holland, Ky., claims that the Tri-County Electric Membership Corporation has destroyed his business and rendered his property worthless. He asks $500 damages.

Mr. Meador, who owns the Holland Telephone Exchange, said the noises, due to the eight-mile paralleling of his telephone lines by the electric corporation, were such that he had to suspend service. The case will come up for hearing in the circuit court at Scottsville on September 12.

▼ ▼

Poet Complains of Gossip On Rural Party Line

Gossip on a rural party line out of Uhlerstown, Pa. (P. O. Frenchtown, N. J.), caused Dorothy Parker, the poet, to complain to the Pennsylvania Public Utility Commission that the telephone in her farmhouse is good only for gossiping with her Bucks County neighbors.

The complaint was filed by Mrs. Walter Campbell, mother-in-law of Miss Parker, who testified before Commissioner Richard J. Beamish on July 27 that the rural region along the Delaware River is rapidly becoming a colony of artists and writers who make many long distance calls. For that reason, they prefer that the Bell Telephone Co. of Pennsylvania move into the district which is now served by the Bucks United Telephone Co.

▼ ▼

Service "Very Satisfactory"; Rate Increase Allowed

Commending the Central West Co. for the work it has done in rehabilitating the telephone exchange at Hurley, S. D., the South Dakota Board of Railroad commission has entered an order authorizing the company to increase its rates as requested, with one exception: that the new business rate shall be 25 cents a month less than the rate applied for. The new schedule of net monthly rates follows:

Class of Service	Monthly Net Rates
Individual line business	$2.75
Two-party business	2.25
Business extension	.75
Individual line residence	2.00
Two-party residence	1.75
Rural multi-party	1.50
Residence extension	.50
Extra charge for desk sets outside base rate area	.25
Extra charge for handsets	.25
Service station switching	.25

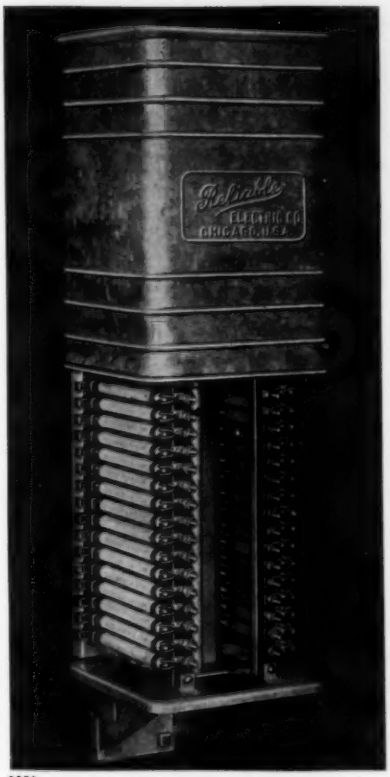
The Hurley exchange was acquired in 1926 by the Central West Public Service Co. which later was reorganized as two companies — the Central Electric & Telephone Co. as an operating company, and the Central West Co. as a liquidating company. Among the properties turned over to the latter company for purpose of sale or other disposition was the Hurley exchange.

In the spring of last year two sleet-storms damaged the property of the Hurley exchange to such an extent as to entirely destroy service. Service was not restored for a considerable period thereafter. After patrons had filed a complaint with the board of railroad commissioners and a subsequent conference with representatives of the Central West Co., repairs were made to the telephone plant at an expenditure of $3,137 and service restored late in the summer. The company now furnishes magneto service to 71 town and 38 rural subscribers at Hurley and vicinity.

The company then filed application for a rate increase and, after an investigation and public hearing in the matter, the board of commissioners recently handed down its ruling as mentioned previously.

The company's engineer found the present value of the Hurley exchange

(*Please turn to page* 39)



Reliable

PROTECTED CABLE TERMINALS

The all metal B-27 is modern and outstanding in design with added assurance of long "terminal life."

Made in three types for three standard cable terminal fuses. Upon request we will send a sample for your inspection without charge.

Reliable ELECTRIC COMPANY
OVER 25 YEARS SERVICE TO THE UTILITIES

The Manufacturers' Department

New Line of Single-Speed Exhaust Fans

There are five sizes in the Emerson-Electric exhaust fan line, designed to meet the large demand for popular-priced, single-speed exhaust fans. Outstanding features of these fans are:

One of the new line of Emerson-Electric single-speed, sleeve-bearing exhaust fans.

Heavy duty fully-enclosed, self-cooling motor; wool-packed oversize bronze bearings for continuous operation with only occasional relubrication; nine overlapping steel blades. The fans are designed for installation with the motor shaft in horizontal position.

These fans are practical for stores, factories, operating room, restaurants, garages, in fact, every type of commercial and industrial building.

The fans are built for operating on single-phase, 110-volt, 60-cycle current.

▼ ▼

Insulating Tapes Woven From Glass Yarn

New electrical insulating tapes, woven entirely from glass yarns, have recently been developed by the Corning Glass Works, Corning, N. Y. These tapes, with the appearance and flexibility of ordinary textiles, are intended for the insulation of coils for motors, generators, transformers, and for cables and other electrical conductors.

As they are composed solely of glass, they not only have exceptional electrical properties and chemical resistance, but have the ability to withstand temperatures far in excess of the limits specified for class B high temperature insulation. They impregnate readily with resins, gums and varnishes to form an insulation impervious to moisture and of high dielectric strength.

The flexibility and textile properties of these tapes are obtained from the extreme fineness of the glass fibres, which is from one-fifth to one-twentieth the diameter of a human hair.

▼ ▼

Kellogg's New Relaymatic Switchboard

The new Kellogg Relaymatic is a full-relay automatic switching unit designed for intercommunication and exchange service. Recently announced by the Kellogg Switchboard & Supply Co. of Chicago, the Relaymatic switchboard is adaptable to the problem of the unprofitable small exchange trunking into a larger or main exchange. In such locations this equipment is particularly interesting in that maintenance and inspection are necessary only at infrequent intervals.

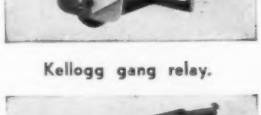
The new twin contact and gang relays used in this Relaymatic switchboard, designed in Kellogg's engineering department, will hold adjustments and are free in action, it is stated.

The present Relaymatic units come in two sizes. One has a capacity for 40 lines, including trunks, and 10 link circuits. The 40-line unit is built in two bays of equipment occupying a total floor space of 6 feet by 18 inches. The height of the cabinet is 6 feet 6 inches. The switching equipment is located in one bay and the power and trunk equipment in the other.

The 100-line unit consists of three bays occupying a total floor space of 9 feet by 18 inches. The height of the 100-line cabinet is 8 feet, 7 inches. The third bay of the 100-line unit is detachable for easy shipping and handling and houses the power, trunk and miscellaneous equipment.

With this new Relaymatic switching equipment, the following services may be offered to subscribers:

1. Flat-rate, individual line, bridged ringing.



Kellogg gang relay.

Kellogg twin contact relay.

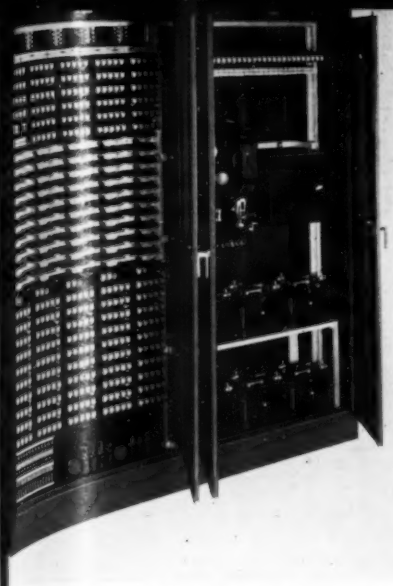
The Suttlephone

Will Show Profits on Handset Rates

A complete, self-contained, magneto handset telephone that meets with the immediate approval of the hard-to-satisfy subscriber. Base only 6½x 10¼ inches. Weight 10 pounds. Three-bar, 1000 ohm ringer, $19.10.

Think what you can do with this instrument in your magneto exchanges.

SUTTLE EQUIPMENT CO., Lawrenceville, Illinois



Kellogg's new Relaymatic switchboard designed for intercommunication and exchange service.

2. Flat-rate, two- to ten-party line, bridged ringing.

3. Flat-rate, two- to ten-party line, divided ringing.

4. Post-payment dial pay-station service.

▼ ▼

Death of Former Kellogg Sales Engineer

Ormond F. ("Duke") Cassaday, of La Grange, Ill., 54 years old, associated with the Western Electric Co. for the past 15 years and well-known in the Independent telephone field through his former connection as sales engineer with the Kellogg Switchboard & Supply Co., Chicago, died August 4. He had not been in good health for about 2½ years and recently underwent an operation from which he did not recover.

At the age of 15, Mr. Cassaday became interested in electric lighting and attended the Collegiate Institute, of Detroit. Then he took a job with the Michigan Electric Co., of Detroit, and from there went to London, Ont., Can., where he worked on telephone construction for a year. He was employed by the Sarnia Street Railway & Electric Lighting Co. at Sarnia, Ont., Can., for a time and went from there to the Canadian Bell Telephone Co. where he helped in a large common battery cutover at London.

Going to Columbus, Ohio, Mr. Cassaday engaged in installation work for the Central Union Telephone Co. He gained valuable experience in switchboard maintenance in 1901 when working for the People's Telephone Co. at Akron, Ohio. Shortly thereafter he went to Cuyahoga Falls as manager where he remained until 1906.

Mr. Cassaday at that time went to Chicago to take up work in the engineering department of the Western Electric but remained only three months, returning to Akron about April 1, 1906, to help on an automatic cutover. He then went to Cleveland on switchboard reconstruction and in 1907 was made assistant superintendent of equipment. Work in Detroit and in Kansas on engineering projects and rebuilding telephone plants occupied the next two years.

In 1909 he became associated with the United States Telephone Co. in Ohio in estimating and appraisal work and special engineering in connection with automatic work and automatic long distance calling. He was with this company until 1914, with the exception of a brief period in 1910 when he was with the Western Electric Co. in Chicago. While with the United States company at Columbus he was superintendent of equipment and also did considerable engineering and installation work for it.

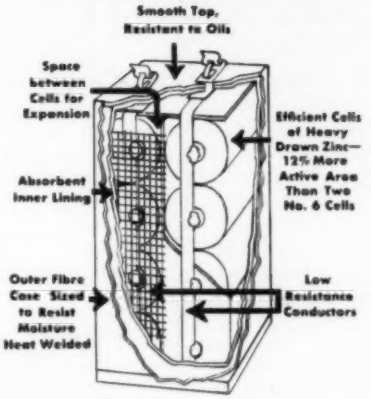
In 1914, Mr. Cassaday became sales engineer of the Kellogg Switchboard & Supply Co. with headquarters in Chicago, which position he retained for five years and made wide acquaintances throughout the Independent telephone field. Early in 1920 he purchased an interest in the Gund Mfg. Co. at La Crosse, Wis., becoming its secretary-treasurer and general manager.

On September 4, 1923, Mr. Cassaday once more became connected with the Western Electric Co. in Chicago where he remained until his death, at which time he was chief of the equipment engineering department.

ORMOND F. CASSADAY, associated with the Western Electric Co. for the past 15 years and a former sales engineer with the Kellogg Switchboard & Supply Co., died August 4. He is shown as he appeared in 1920

Mr. Cassaday is survived by his widow, Clara, and a son, Donald.

INSIDE INFORMATION


Smooth Top, Resistant to Oils
Space between Cells for Expansion
Efficient Cells of Heavy Drawn Zinc—12% More Active Area Than Two No. 6 Cells
Absorbent Inner Lining
Outer Fibre Case Sized to Resist Moisture Heat Welded
Low Resistance Conductors

—on the BURGESS Twin-Six Telephone Battery

The quality of the material inside and the construction details determine the amount of service you get from your telephone battery. Only Burgess batteries offer all the features shown in the illustration. Only Burgess batteries have their useful life prolonged and protected by "chrome." They have more active zinc area. They give many hours of extra service and save money on installation. Order your trial supply of Burgess Twin-Sixes (4F2J) today. Cost is only 49c in lots of 30. (57c In Pacific territory.) Freight paid to your telephone exchanges.

BURGESS BATTERY COMPANY
FREEPORT, ILLINOIS

BURGESS WALL BRACKETS SIMPLIFY INSTALLATION
Write for Information

BURGESS TELEPHONE BATTERIES

Theory of Modern Television

This is the first of a series of articles which will carry complete details of the theory of modern television instrumentalities such as the iconoscope, the kinescope, and other similar items of 1938 television equipment. Before taking up the latest methods, we must necessarily review some of the earlier attempts at television. Television should be of general interest to telephone men in view of the part telephone coaxial cables will probably play in modern television.

Television has come a long way during the past ten years. Our early 30-line television pictures as compared with the modern 441-line television system were as crude as the early ox-cart compared with the modern automobile. That television is now a reality that will receive great attention and development for home use during the next few years is evidenced most strongly by the fact that our leading laboratories have set aside millions for television research and development work.

The major laboratory problems still to be solved have to do with making existing equipment practical for home use. They include the matter of cheapening the equipment so as to be within reach of the average person and, above all, solving the question of how television signals can be transmitted back and forth across the country in a manner similar to that of chain radio programs.

NO. 3 UNIQUE—

A TORCH THAT CAN "TAKE IT"

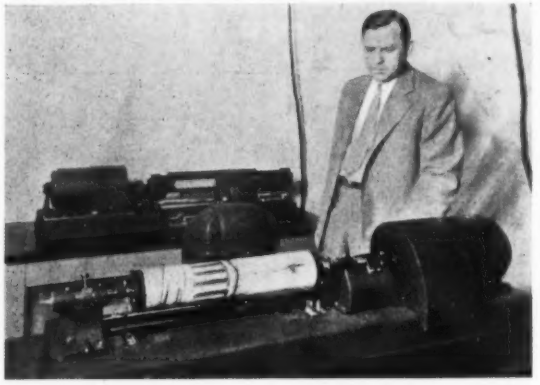
Powerful flame 1¼ x 7"—2000° F. Not affected by wind or cold.

Removable orifice block and cleaning needle—fine control.

Safe steel tank—brazed fittings, welded bottom, funnel filler.

Wt., 4¼ lbs. Price, $6.80. Try one for 30 days?

UNIQUE MANUFACTURING CO., Inc.
221 W. WALTON ST. CHICAGO, ILL.



(Courtesy of Bell Laboratories Record).
FIG. 1. LATEST TYPE OF WIREPHOTO TRANSMITTER

In our study of television, we must not confuse it with *facsimile transmission*, which is an entirely different process. The term "facsimile" or "wirephoto" refers to a method of transmitting pictures, drawings, or written matter over either telephone wires or radio by any one of several different schemes, all of which require five minutes or more to complete the transmission of a single picture.

Television is virtually an instantaneous process. In facsimile, we dissect or take apart the material to be transmitted, one element at a time, and slowly pass these elements (by conversion into electricity, of course) to the distant receiving equipment where each of the elements are reassembled in the same order in which they were when taken apart at the transmitting station. Within five or ten minutes after the facsimile transmitting is started, we have received and reassembled the complete picture at the receiving station.

In television, we also dissect or "take apart" the scene which is being transmitted; but in order that we may view motion and see complete scenes instantly, the process of dissecting and reassembling the televised scene must take place at an extremely rapid speed. Herein lies the basic difference between facsimile and television. Fig. 1 shows a late type wirephoto transmitter.

Human Eye Compared to a Television System

In order better to grasp the principles of television, let us consider the construction and action of the human eye. The basic mechanism of the human eye is shown in Fig. 2. It will be noted that it consists of a *lens, a retina,* and a large number of tiny *rods* and *cones;* and connected to each of these retinal elements (the rods and cones) is a minute optic nerve which runs to that part of the brain which is the center of vision.

The purpose of the lens of the eye is to pick up light rays from any scene or object at which we may look, and focus

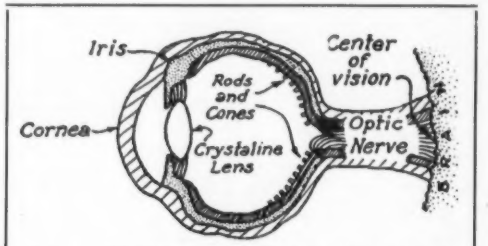


FIG. 2. CONSTRUCTION OF THE HUMAN EYE

the light received on the retina. Here, the light from the scene stimulates the tiny rods and cones in proportion to the amount of light from the particular part of the scene.

There are millions of these tiny rods and cones, and each will have light from only a small elemental part of the scene falling upon it. Each optic nerve connected to the rods and cones will send a message to the brain, registering the amount of light, or absence of light, falling on it. The sum total of all of the messages transmitted to the brain at any instant results in what we term vision.

Summarizing these several functions again, we find that the lens serves as a collector of light rays reflected from the same view; the retina, with its millions of tiny rods and cones, functions as a light sensitive element which evaluates the light in each elemental part of the scene; the optic nerves by their reaction transmit to the brain a quantitative measure of the light falling on each element; and that portion of the brain which houses the center of vision gives us the "sense of seeing."

COMMISSION AND COURT ACTIVITIES

(*Continued from page* 35)

property to be $15,757, while the engineer of the board of railroad commissioners placed the present value at $13,784. The proposed rates, it was estimated would yield a return of 4.42 per cent upon the company's estimate of the fair value and a return of 5.83 per cent on the basis of the estimate made by the board.

"The plant, at the present time" the board found "is in good condition and the record shows that the service furnished is very satisfactory. The evidence presented in this case clearly shows that the company is entitled to an increase in its telephone rental rates at Hurley . . ."

▼ ▼

Finds Future Costs Will Be Increased

With but one exception the Minnesota Railroad & Warehouse Commission, on July 1, approved the schedule of increased rates filed by the Empire Telephone Co. for service at Grove City and vicinity. The commission denied the company permission to remove the 25-cent differential between the rates for grounded line and metallic line rural service until such time as 95 per cent of its rural subscribers shall be served on metallic lines.

The new schedule of gross monthly rates, which follows, represents increases of 25 cents on all rates excepting those for two-party business service:

Individual line, business	$3.00
Two-party line, business	2.50
Individual line, residence	2.00
Four-party line, residence	1.75
Rural multi-party, metallic	2.00
Rural multi-party, grounded	1.75

These rates are subject to a discount of 25 cents a month for payment on or before the last day of the month in which service is rendered.

According to the findings of the commission in this proceeding the Empire Telephone Co. operates exchanges at Dassel and Grove City. The latter serves approximately 106 local and 189 company-owned rural stations and furnishes switching service to 57 service stations.

The company now serves some 185 subscribers on rural grounded lines, but, due to the construction of electric distribution lines in its territory, it will be necessary to metallicize a large percentage of these lines. In some remote localities, however, grounded lines may render a better service and may be more economical than metallic lines.

It was found by the commission that the proposed rates would yield a return of 4.4 per cent on a fair value of $37,187 of the company's property. In contrast to the company's average maintenance cost of $3.60 per station, the commission found that the maintenance cost of 52 class "C" telephone companies in the state of Minnesota averaged $4.70 per station, while 64 class "D" companies had an average maintenance expense per station of $4.50.

The record further discloses, says the commission, that due to the construction of power lines in the vicinity, requirements of the minimum hour and wage law, additional taxes and maintenance deferred during the depression, future costs will be materially increased.

▼ ▼

Company Ordered to Revise Books and Records

The Upstate Telephone Corp. of New York, with headquarters at Johnstown —a merger of the Glen, Black River, North Creek & Chestertown and Walker telephone companies—was directed by the New York Public Service Commission, in a ruling handed down recently, to make certain corrections in its books and accounting records as of December 31, 1933.

In 1933 the commission approved the acquisition by the Glen Telephone Co. (whose name was subsequently changed to the Upstate Telephone Corp. of New York) of the three companies previously named, with the provision that the proceeding be continued until the commission had determined the proper book entries resulting from the merger authorized.

The commission's recent order follows the examination of the books of the several companies involved in this merger by the accounting and engineering divisions of the commission. It directs the Upstate corporation to place a certain journal entry on its books as of January 1, 1934, which has the effect of writing off against its surplus the amount of $6,627.95 representing organization charges on the books of the Black River, North Creek & Chestertown, and the Walker companies just prior to the merger. The Glen company carried no charges to organization account.

The Glen Telephone Co. at December 31, 1933, reported book balances in telephone plant of $1,772,604.40. As a result of examination by the commission, this was reduced to $1,757,655.08. The depreciation reserve in the amount of $752,615.65 was reduced to $723,010.79.

The Black River Telephone Co. at December 31, 1933, reported book balances in telephone plant in the amount of

OLIVER

CONFORMING TO THE MOST RIGID SPECIFICATIONS OF TELEPHONE AND TELEGRAPH COMPANIES EVERYWHERE

Oliver Pole Line Materials are accepted and approved by the leading public utility companies throughout the country as the standard of modern design and construction.

OLIVER IRON AND STEEL CORPORATION
PITTSBURGH, PENNSYLVANIA

OLIVER POLE LINE MATERIALS
APPROVED AND ACCEPTED SINCE 1894
OLIVER

UNIQUE MANUFACTURING CO., Inc.
221 W. WALTON ST. CHICAGO, ILL.

$1,188,452. The final corrected balance in fixed capital has been reduced by the commission to $1,187,634.63. The balance is depreciation reserve of $457,-014.19 has been increased, as a result of the examinations by the commission, to $465,599.30.

The North Creek & Chestertown Telephone Corp. at December 31, 1933, reported a book balance in telephone plant in the amount of $177,069.03. This has been finally corrected to $172,734.04 by the commission. The depreciation reserve of $47,248.70 has been reduced to $47,191.79.

The book balance of the Walker Telephone Co., Inc., at December 31, 1933, of $38,839.56, has been finally corrected to $38,785.20 and its reported depreciation reserve of $7,653.46 changed to $7,619.85.

The order also provides that within 30 days of the service of its order, verified proof that the entries set forth have been made shall be submitted to the commission. Reports rendered to that body as a result of the examinations of the books, records and physical property of the several companies included field reports of the acounting divisions relative to the Glen, Black River, North Creek & Chestertown and Walker companies, a report of the engineering division and a final report of the commission's accounting division.

Has to Metallicize Lines; Increase Rates

Following authorization by the Nebraska State Railway Commission, Louis C. Doelz, manager of the Coleridge (Neb.) Telephone Co., has announced a new schedule of rates: Business, individual, $2.25; business, party, $1.75; residence, individual, $1.75; residence, party, $1.50, with a reduction of 25 cents a month where the instrument is subscriber-owned and 25 cents additional where payment is made in advance.

The commission finds that because of the activities of a government-financed rural electrification project, the company will have to expend $1,270 to metallicize its lines, and that as the company has not earned a reasonable return on its property for several years, an increase is necessary in order that it may be able to give adequate service.

Manager Doelz says that the general practice is to increase rural rates 25 cents a month, but that he was able to offer this service at an advance of but 15 cents a month through an agreement with the business and professional men of the town to accept a 40-cent increase in business and 15 cents increase on residence service.

The company, Mr. Doelz says, has made considerable improvements to plant in the last year and a half in spite of the fact that rates pay only operating costs and there is no depreciation reserve.

▼ ▼

Increased Rates Approved For Common Battery Service

The Redwood County Rural Telephone Co. has been authorized by the Minnesota Railroad & Warehouse Commission, in an order handed down August 3, to increase its rates at Morgan, Minn., upon the completion of its proposed plan of reconstruction and the establishment of common battery service.

At such a time the present gross rates of $2.50 per month for individual line business service and $1.75 for individual line residence service will be replaced by the following schedule of gross monthly rates, subject to a discount of 25 cents per month when payment is made before the 15th of the month in which service is rendered:

Individual line, business	$3.00
Two-party line, business	2.75
Individual line, residence	2.00
Four-party line, residence	1.75

The findings in this proceeding show that the Morgan exchange of the petitioner serves approximately 40 business stations, 74 residence stations, 112 rural stations and 67 rural switching stations. It is further shown that the present book value of the plant is $17,569; that the proposed improvements would increase the book value by some $4,000.

The net income from the Morgan exchange for the five years ending with 1937 was shown to be as follows: 1933, $1,220; 1934, $660; 1935, $833; 1936, $1,089; 1937, $1,282.

The record discloses, further, that 80 per cent of the subscribers affected by the proposed rate increase petitioned the commission for common battery service.

Finding from the evidence in the case that the new rates would not produce more than a fair return upon the investment, the commission issued an order granted that petition of the Redwood County company.

▼ ▼

New York Independent Buys Small Property

Transfer of the plant of the Smyrna Telephone Co., Inc., to the Chenango & Unadilla Telephone Corp. for a consideration of $4,300 has been approved by the New York Public Service Commission. The Smyrna company came under control of the Associated Gas & Electric System in 1925 as a part of a unit purchase which included the property and stock of the Earlville Electric Co. and is the only telephone company

"Dixie" POLES & PILING
ALL DENSE LONGLEAF YELLOW PINE

JACKSON LUMBER COMPANY POLES DIXIE PILING LOCKHART ALABAMA

Only the best go into Dixie Poles and Piling. They are straight, strong, and naturally resistant to decay. Creosoted or "WOLMANIZED" at Macon, Ga., and Gainesville, Fla. For quotations, address:

JACKSON LUMBER COMPANY
LOCKHART, ALABAMA

A CROSSETT WATZEK GATES INDUSTRY

owned by the Associated interests in New York state.

The territory served by the Chenango & Unadilla company surrounds that served by the Smyrna company which supplies telephone service to 89 subscribers in and near the village of Smyrna. The property of the Smyrna company is in poor condition and it was estimated that it would cost $7,500 to put the plant in shape. The Chenango & Unadilla company proposes to make these improvements, most of which are required outside the village.

Operations of the company have been at a deficit for the past several years and no dividends have been declared since 1932. It is indebted to Associated Power Corp. and New York State Electric & Gas Corp. for advances and accounts payable which aggregate $6,816.87. Operating deficit in 1936 amounted to $1,045.78.

▼ ▼

Summary of Commission Rulings and Hearings

Federal Communications Commission Washington, D. C.

July 22: Authority granted to the Chesapeake & Potomac Telephone Co. of W. Va. and the American Telephone & Telegraph Co. to supplement existing facilities between Charleston and Kanawha Falls, W. Va.

July 26: Application filed by Indiana Bell Telephone Co. for authority to supplement existing facilities between College Corner and Liberty, Ind. P-C-119.

July 26: Application filed by Bell Telephone Co. of Pennsylvania for authority to supplement existing facilities between Easton and Portland, Pa.

August 3: Commission ruled that the Northwest Telephone Co., Tomah, Wis., and Milton & Milton Junction Telephone Co., Milton Junction, Wis., are fully subject to all provisions of the Communications Act of 1934 applicable to wire companies. The commission held that in both cases the Wisconsin Telephone Co. through stock ownership and through the indebtedness to the Wisconsin Bell of John S. Allen, president of both companies, "unquestionably" controls both companies.

Illinois Commerce Commission

September 14: Hearing in Chicago (continued to this date from July 19) on the proposed new system of accounts for Class A and B companies, at which time Samuel Meisels, accountant for the commission, will be cross-examined.

Kansas Corporation Commission

September 6: Hearing in Topeka on application of the Southwestern Bell Telephone Co. for permission to increase its rates in Kansas City, Kans., to equal those in effect in Kansas City, Mo., and for authority to change the rate for service connections and moving telephones in Kansas City, Kans.

Michigan Public Utilities Commission

July 21: Commission approved for filing the tariff of the Britton Telephone Co. M.P.U.C. No. 1.

July 21: Levering Telephone Co. granted certificate of convenience and necessity.

July 21: Tariff of the Levering Telephone Co. M.P.U.C. No. 1 approved.

July 21: Commission approved for filing tariff M.P.U.C. No. 1 of the Lake City Telephone Co.

July 21: Commission approved as filed the tariff of Baroda Telephone Co.

Missouri Public Service Commission

August 4: Joint application filed by K. D. McGee for permission to sell and by Bert Swartwood for permission to purchase the telephone exchange at Dunnegan, Mo. Case 9533.

August 5: Application filed by J. E. Thomas for permission to sell and by O. C. Kilbourn for permission to purchase; and for O. C. Kilbourn to sell and Frank W. Bentley to purchase the Laredo Telephone Exchange. Case 9590.

Minnesota Railroad and Warehouse Commission

August 3: The commission granted the application of the Redwood County Rural Telephone Co. for authority to place in effect a schedule of increased rates at its Morgan exchange, effective upon the completion of the proposed reconstruction of its plant and the establishment of common battery service. M-2410.

Ohio Public Utilities Commission

August 5: The secretary of the commission certified his report on the application of the Metamora-Richfield Telephone Co., serving both Ohio and Michigan subscribers, to increase its rates as follows: Business independent, $2.75 to $4.25; two-party, $2.50 to $3.75; rural, $2.25 to $3.50; extension, 50 cents to $1; residence, independent, $2.25 to $2.75.

The commission's engineers report a rate base of $52,753.41 as of June 30, 1938, of which $48,505.97 is depreciable, and an anticipated experience under the proposed rates of revenue of $251.84 short of paying actual out-of-pocket costs, and providing a proper depreciation revenue appropriation.

August 5: Due to the construction by the Northern Ohio Telephone Co. of a new joint Cheshire-Lewis exchange, the commission authorized the Ohio Bell Telephone Co. to amend its rate and route guide to show the consolidation of the former separate exchanges.

Oklahoma Corporation Commission

August 3: The commission dismissed the application of the Oklahoma Gas & Electric Co. for authority to remove 26 spans of telephone wire and poles belonging to the Southwestern Associated Telephone Co., between Guthrie and Mulhall, for the reason that the matter had been settled by compromise.

The application was first heard June 1, 1937, when the electric utility asked for removal of the telephone lines in order to avoid an overbuild along the route. The O. G. & E. company finally agreed, following the hearing, to con-

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Fentrex Butt Treated or Plain.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

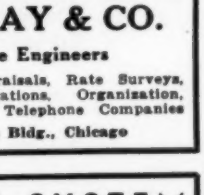
Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finishd Cedar Poles. Plain or butt-treated.

LOOMIS ADVERTISING CO.
TELEPHONE DIRECTORY ADVERTISING
A SALES ORGANIZATION EXCLUSIVELY
TELEPHONE BLDG. CITIZENS TRUST BLDG. 135 S. SECOND ST.
KANSAS CITY, MO. FT. WAYNE, IND. PHILADELPHIA, PA.

Consulting Telephone Engineer
"Modernization of Equipment and Methods for Improved Service"
GARRISON BABCOCK
1104 Third Avenue, Seattle, Washington

Frank F. Fowle & Co.
Electrical and Mechanical ENGINEERS
35 East Wacker Drive CHICAGO

J. G. WRAY & CO.
Telephone Engineers
Specialists in Appraisals, Rate Surveys, Financial Investigations, Organization, and Operation of Telephone Companies
3324 Bankers Bldg., Chicago

COFFEY SYSTEM
Exclusive Telephone Accountants
Systems Installed
Audits and Special Services
CENTRAL ACCOUNTING DEPARTMENT
Lemcke Bldg., Indianapolis

NOW—ELECTROX Current Supply Unit for operator's sets at a new low price — $14.85. No batteries needed.
Sent on Trial
Schauer Machine Co.
2040-2068 Reading Road
Cincinnati, Ohio